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DEVELOPMENT OF OVERALL NATIONAL STATISTICAL CAPABILITIES

(Item 5 of the provisional agenda)

REPORT OF THE SEMINAR ON THE ORGANIZATION OF STATISTICAL WORK IN A CHANGING ENVIRONMENT

Note by the secretariat

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I. ORGANIZATION OF THE SEMINAR

1. The Seminar on the Organization of Statistical Work in a Changing Environment was held in Moscow, Union of Soviet Socialist Republics, from 26 September to 5 October 1984. It was organized by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and financed through the United Nations regular programme for technical co-operation. The Government of the USSR, through its Central Statistical Board, arranged facilities for the holding of the Seminar.

Attendance

2. The Seminar was attended by participants from the following member countries of ESCAP: Afghanistan, Bangladesh, Bhutan, China, India, Islamic Republic of Iran, Lao People's Democratic Republic, Malaysia, Mongolia, Nepal, Philippines, Republic of Korea, Sri Lanka, Thailand, Union of Soviet Socialist Republics and United States of America. A representative of the United Nations Statistical Office attended. The Council for Mutual Economic Assistance (CMEA) was also represented.

Officers

3. The Seminar elected Mr. G.A. Manasov (USSR) as Chairman, Mr. Hyung-Cheull Kim (Republic of Korea) and Mr. Yue Wei (China) as Vice-Chairmen, and Mr. P.P. Sangal (India) as Rapporteur. Mr. Andrew J. Flatt of ESCAP acted as Director of the Seminar.

Opening statements

4. The Seminar was inaugurated by Mr. V.S. Kudinov, Deputy Chairman of the Central Statistical Board. In his address, he emphasized the very important function that statistics fulfilled for planning and policy-making purposes. Within the context of supporting co-operation between countries having different social systems, the USSR Government through its Central Statistical Board had been co-operating extensively in the activities of the United Nations Statistical Commission, as well as in those of regional bodies such as ESCAP which were providing technical assistance to the developing countries of the region. Regarding the current Seminar, the Board had gathered much experience over the past 66 years in organizing statistical work under changing circumstances, and was ready to share that expertise. At the same time, it was also interested to learn of the efforts of the developing countries of the ESCAP region to respond to the challenges of a rapidly changing statistical environment. Mr. Kudinov recalled the success of previous statistical seminars held in the Soviet Union, and expressed confidence that the current Seminar would

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similarly make a sizeable contribution to improving statistical work in developing countries.

5. Mr. R.V. Issinsky, Department for Technical Assistance to the United Nations of the State Committee for External Economic Relations, briefly described the role of his Committee in co-ordinating the activities of Soviet organizations in the field of technical assistance. As far as relations with ESCAP were concerned, activity had never been higher; the Seminar was the fifth ESCAP function to be held in the USSR in 1984. The Central Statistical Board had made all arrangements for the Seminar, but Mr. Issinsky hoped that during their stay in the USSR participants would not confine themselves entirely to technical aspects and would have the opportunity to learn something of the country and its people.

6. In his message, the Executive Secretary of ESCAP noted that the rapidly increasing demand for data at all levels of government coincided with the emergence of new technologies for processing information. That created opportunities for, and attendant difficulties in supplementing data from conventional sources by administrative and other records. Close co-ordination and technical co-operation between statistical offices and other agencies were therefore needed. The national statistical system had also to respond to the needs for data in subnational and smaller geographic areas, as well as maintain the quality of statistical data. He noted that those and other features of the rapidly changing environment in which statisticians worked formed the subject-matter of the Seminar, to which the USSR, the United Nations Statistical Office and CMEA were all contributing their expertise. He felt confident that the Seminar's conclusions and recommendations would assist the developing member countries of ESCAP in meeting the growing demands for information in an environment of changing technology.

7. The Seminar adopted the following agenda:

1. Opening of the Seminar.
2. Election of officers.
3. Adoption of the agenda.
4. Organization of statistics in the USSR at present.
5. Review of statistical organization and data collection and processing systems in the countries of the ESCAP region.
6. Emerging statistical needs through technological changes.

7. Interrelationship between national statistical offices, planning bodies and other organizations.

8. Organization of agricultural statistics.

9. Methods used to ensure the reliability of statistical data.

10. Social and economic surveys in the USSR.

11. Provision of the local administrative bodies with statistical information using modern techniques of data collection and processing.

12. Automated processing of statistical information under present conditions.

13. Organization of environment statistics.

14. Adoption of the report.

8. A list of the documents submitted to the Seminar is annexed to the present report.

9. The Seminar was informed of the statistical work of CMEA through an information note (STAT/SWCE/CRP.15) which described the activities of the CMEA Standing Commission on Co-operation in Statistics. CMEA had been founded in 1949 and now comprised 10 socialist countries; the Standing Commission dated from 1962, and its establishment marked a shift to more efficient co-operation in statistical work among CMEA member countries. It had adopted over 100 recommendations covering practically all aspects of statistics and aimed at enhancing the comparability of the data produced. In recent years international comparisons of cost indicators in CMEA countries had become a major element of work. In the field of technical co-operation, CMEA was currently providing assistance in various forms to three members, including Mongolia and Viet Nam.

10. The representative of the CMEA secretariat explained that because the CMEA standard classifications differed from those of the United Nations, work had been done on conversion keys in conjunction with the Economic Commission for Europe (ECE) and other bodies. CMEA was keeping the United Nations Statistical Office informed of revisions in the System of Balances of the National Economy, and work was being done on links between that System and the United Nations System of National Accounts (SNA). The Seminar welcomed the fact that such joint efforts were improving the comparability of statistics of centrally planned and market economies.

11. In the course of the Seminar, a trip was organized to Minsk, where participants visited the Central Statistical Board of the Byelorussian Soviet Socialist Republic and learnt of its work. The discussions in Minsk are summarized in section IX of the present report.

12. At the conclusion of the Seminar, participants expressed their grateful thanks and appreciation to the USSR authorities, especially the staff of the Central Statistical Board. Their hard work in organizing and servicing the Seminar had without doubt contributed greatly to its success.

II. ORGANIZATION OF STATISTICS IN THE USSR AT PRESENT

(Item 4 of the agenda)

13. The Seminar considered the item on the basis of the document entitled "Organization of State statistics in the USSR" (STAT/SWCE/1), presented by Mr. V.S. Kudinov. The report described the organizational structure of the USSR statistical system which comprised four levels - Union, republic, region and district. The activities of state statistical bodies, as well as accounting and statistical functions in the country as a whole, were carried out under the centralized guidance of the Central Statistical Board of the USSR. The Board was organized into subject-matter departments and had under its control organizations responsible for electronic data processing and for research and development in statistical theory and methodology. The paper detailed the many functions of the Board, including the establishment and operation of the automated system of state statistics.

14. The system of statistical data collection, processing and analysis in the USSR was described. The Board annually worked out and approved a plan of statistical activities for the entire state statistics system, and also approved schedules for submission of statistical information to policy and decision makers. Long-term (five-year) plans of statistical activities were also made. The very close interrelationship between statistics and planning at all levels in the USSR was emphasized; statistics were a prerequisite for the drafting of plans and for establishing routine control over their implementation. Much attention was given to the question of timeliness in the presentation of statistical and accounting information on the fulfilment of plan targets, as well as to its completeness and accuracy.

15. In planning and statistics, considerable importance was attached to the computation of indicators. A unified system of national economic development indicators used in both planning and statistics had been established; the

methodology of their determination and their interpretation had been jointly agreed on by statisticians and planners. Overall, statisticians played an active role in the different stages of the planning process.

16. The document also described the scientific basis on which USSR state statistics were founded, and in particular the establishment of a system of indicators covering such areas as population, labour and manpower, natural resources and the environment, and so on. Measures ensuring the reliability of statistical data were also described, and it was mentioned that the subject would be taken up under a separate agenda item.

17. In responding to participants' questions, Mr. Kudinov emphasized the importance of training statistical personnel and mentioned that in order to enhance communication between economists and statisticians on the one hand, and data processing personnel on the other, a group of persons was being trained in both those disciplines simultaneously. The rapidity with which the preliminary population census results had been published was pointed out. As regards the socio-demographic survey planned for January 1985, the Central Statistical Board was in charge of the practical aspects and the final choice of questions would be made by the Board in consultation with other organizations concerned.

18. It was pointed out that in the USSR there was no concept of "government statistics": the concept was rather one of "state statistics". Further details were provided on the unified system of indicators, including the ways in which information on them was disseminated - in some cases through radio and television. Non-response, which posed major difficulties in surveys in several countries of the ESCAP region, was not a problem in the USSR. Participation in surveys such as family budget surveys was on a voluntary basis, while enterprises and organizations were obliged by law to submit reports, on pain of administrative measures and fines; furthermore, the timely submission of accurate reports formed part of the overall performance evaluation of enterprises and hence the allocation to them of resources.

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III. REVIEW OF STATISTICAL ORGANIZATION AND DATA COLLECTION AND PROCESSING SYSTEMS IN THE COUNTRIES OF THE ESCAP REGION

(Item 5 of the agenda)

19. Under item 5, all participating countries of the ESCAP region presented papers (STAT/SWCE/CRP.1-14) describing their statistical systems. A very brief description of those systems follows.

20. All statistical activities of Afghanistan were based on centralized principles, the central body being the Central Statistics Office. Provincial-level offices collected data on various socio-economic sectors, summarized them and sent them to that office. Other departments and institutions had statistical offices which recorded the data necessary for their own development plans and submitted them to the Central Statistical Office which summarized those data and submitted them in turn to the planning authorities, and also published them quarterly and yearly in the statistical yearbook. The Office possessed computerized data processing facilities and currently data collected through most of the surveys and censuses and econometric data were processed by computer. A separate department, however, existed for the collection of agricultural statistics. A nationwide census of agriculture was being planned with the assistance of the Food and Agriculture Organization of the United Nations, some of the preliminary work had already been completed.

21. Bangladesh had followed a centralized statistical system since 1975. All major censuses and many nationwide sample surveys, including household income and expenditure surveys, were conducted by the Bangladesh Bureau of Statistics. The Bureau also processed the foreign trade statistics of Bangladesh and prepared the national income and expenditure accounts. In order to meet the increasing demand for statistics, especially at the micro level, the Bureau had established a comprehensive system of data collection, processing and dissemination. With the establishment of a fourth generation computer and modern data entry system, data processing services had improved substantially. The Bureau's own printing facilities had expedited publication of statistical reports. The National Statistical Council, headed by the Minister for Planning and comprising representatives of various ministries, was responsible for overall planning and policy guidance in respect of statistical programmes in the country. The Council was assisted by various technical committees.

22. The existing statistical system in Bhutan was a partially decentralized one, the Statistics Division of the Planning Commission being the main statistical organization. In addition to data collection, the Statistics Division was responsible for co-ordination of all statistical activities, for providing

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technical guidance on the statistical activities of other departments and for preparing and issuing statistical publications. Efforts were being made to institutionalize statistical activities in the individual departments and organizations and statistical personnel had been attached to some district headquarters. The Government of Bhutan planned to introduce computer facilities in the near future.

23. The State Statistical Bureau was in charge of organizing and directing statistical work throughout China. The local statistical bureaus at various levels were under the dual leadership of local governments at the same level and of statistical bureaux at a higher level, with the latter guiding statistical activities. The number of employees of statistical bureaus at and above the county level was decided on by the State Council, and the central government funded statistical surveys throughout the country. With the information collected by the statistical bureaux and supplied by other government departments which collected data for their own specialized requirements, statistical bureaux gathered major statistical data on economic and social development, compiled balance tables of the national economy and issued summary statistical data relating to all sectors of the economy. The use of computers in processing statistical data in China was a recent development. With the support of the United Nations, all statistical bureaux at provincial level (except Tibet) had started to install computers to some extent.

24. India had a decentralized statistical system with a division of responsibilities between the centre and the states and a further division of responsibilities between central ministries and state government departments. The Central Statistical Organization at the centre and the Directorates of Economics and Statistics in the states were the focal points for co-ordination. In each district there was also a statistical office. Manual recording of data continued to be the main means for capture of primary data. India had made substantial progress in the development of small-area statistics which had been equated with the development of a statistical base to cater to the needs of block-level planning. The data concerning newly-emerging areas of concern such as energy, water and land resources, and the environment, had been identified and efforts were being made to organize collection of data in those areas. Since computerization found ready acceptance in India, computers had been installed in a number of departments and agencies in the centre as well as in the states. Data networks were a new type of infrastructure linked with advances in telecommunication and computer networks, and India was planning the development of a number of such data networks. With a view to cutting down printing delays,

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there was a plan to acquire microprocessor-based offset printing facilities incorporating electronic type-setting.

25. The statistical system in the Islamic Republic of Iran was decentralized. The Statistical Centre of Iran was the central organization responsible for producing data required by the country. The Centre now had a central office where the statistical plans required at national level were prepared. The Centre was responsible for conducting major censuses, various sample surveys on socio-economic aspects, processing of data and dissemination of data through periodic reports. The Centre was also responsible for standardization of the concepts, definitions and methodologies used by various agencies engaged in data collection. The other government organizations engaged in data collection in various other fields, and their processing and dissemination, were the Central Bank (Bank Markazi), the Ministry of Labour and Social Affairs, and the Ministry of Agriculture.

26. At the central level, the Statistical Centre of State of the Lao People's Democratic Republic was responsible for the direction of statistical work in the whole of the country according to centralized principles, as well as for the collection and processing of data in various fields of statistics. Several ministries and agencies had statistical divisions for data collection and preparation of statistical reports, and all statistical work in those divisions was managed under the direction of the Statistical Centre. At the provincial level, there were units in planning divisions that also worked under the direction of the Centre as regards statistical work. Those units were responsible for the collection of data on the economic situation in the provinces, and for processing and submitting reports to the Centre. The Centre was now preparing for the first historical general population census to be conducted in 1985.

27. The statistical system in Malaysia was largely centralized and the Department of Statistics was responsible for all major data collections at the national level. There were statistical units in several ministries and departments which collected and processed data for their own use. The Department of Statistics was responsible for collecting statistical data in various subject-matter fields, conducting censuses and sample surveys, processing data through its own computer system, preparing estimates of national accounts, and disseminating data through periodic reports. Generally all positions of statisticians in other ministries and departments were filled by professional staff from the national statistical service which was headed by the Chief Statistician, who was also the Head of the Department of Statistics.

28. The statistical system of Mongolia was centralized; the centralized guidance of the activities of state statistical bodies, as well as accounting and statistical activities in the country, was carried out by the Central Statistical Board of the Mongolian People's Republic. The major activities of state statistical bodies consisted of collection and compilation of statistical information and its dissemination, analysis of statistical information, establishment of the automated system of state statistics with the application of mathematical models and computer technology, and methodological research. During the second half of 1984, workers in the fields of accounting and statistics would be celebrating the sixtieth anniversary of the establishment of the statistical service of Mongolia.

29. Nepal had a decentralized system of data collection. The Central Bureau of Statistics was responsible for co-ordination and standardization of data collected by various agencies. Besides the above functions, the Central Bureau of Statistics was responsible for conducting major censuses, demographic sample surveys and surveys of cottage industries, preparation of national accounts estimates, and analysis of statistical data and its dissemination. Processing of the bulk of the data was carried out at the National Computer Centre. However, there were a large number of microcomputers in use in various organizations. Other statistics were collected by the administrative agencies concerned, for example, foreign trade statistics were compiled by the Department of Customs and Trade Promotion, agricultural statistics by the Department of Food and Agricultural Marketing Services, and so on.

30. The statistical system of the Philippines was a decentralized one with a central co-ordinating body. The Statistical Co-ordination Office of the development planning authority, assisted by the Statistical Advisory Board and a number of interagency committees, was responsible for co-ordination of statistical activities. The premier operating statistical agency was the National Census and Statistics Office which conducted all the censuses and large-scale household and establishment surveys for the collection of general socio-economic statistics. The National Census and Statistics Office had established a strong computerized data processing system. One of the latest and most important developments was the recent institutionalization of a system of economic and social indicators. The system had been initiated in 1978 and was designed to monitor and measure the degree of attainment of various goals and targets set forth in the medium-term development plan.

31. The current statistical system in the Republic of Korea was decentralized. Responsibility for data collection rested with various central,

local or provincial government agencies, and with certain non-government agencies. The functions of co-ordination and standardization of the statistical activities of the various data-collecting agencies were carried out by the Statistical Council and the Statistical Sub-Committee of the policy-making Advisory Committee of the Economic Planning Board through the National Bureau of Statistics. That Bureau also undertook data collection, and processed data collected by the Bureau itself and by other agencies. A computer centre organized to computerize the government's administrative work undertook processing of data for several ministries and government agencies. While dissemination of statistical information rested with the various data-collecting agencies, the Bureau played a major role through its co-ordination and standardization function.

32. The Department of Census and Statistics in Sri Lanka was the main authority responsible for the principal statistical activities and was the main source of statistical information. In addition to its activities relating to data gathering and processing and dissemination of statistical information, the Department was responsible for statistical co-ordination and standards and for providing technical guidance to other ministries, departments and agencies undertaking statistical activities. Sri Lanka was in the process of developing a data bank with the objective of providing reliable information at the village level. The Department had established a computerized data processing system. The National Household Survey Capability Programme (NHSCP) had been accepted as the chief mechanism for collecting information needed by the Government for its national development plans, policies and programmes.

33. Thailand had a decentralized statistical system with the National Statistical Office of Thailand, however, carrying out the functions of data gathering, processing and dissemination of statistical information in a large number of fields. The National Statistical Office had the responsibility of conducting censuses and socio-economic sample surveys and of planning, co-ordinating, giving guidance and directing the technical aspects of all statistical projects and activities of the government. There were a few other major statistical units under other government agencies which undertook large statistical projects; those were formulated and organized through close co-operation with the National Statistical Office with regard to survey methodology and data processing. The Office had established a computerized data processing system with a subunit in the Data Processing Center of Thailand.

34. The Seminar noted that under various other items of the agenda a number of useful suggestions had been made relating to the organization of statistical work. Those included the relationships between statisticians and planners,

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and measures to improve interaction between statisticians and EDP personnel, as well as to retain the latter. The discussion of country papers, however, provided a further opportunity for a consensus to emerge on certain important issues.

35. The Seminar considered the issue of the effectiveness of centralized and decentralized statistical systems. It recognized that most systems in developing countries of the ESCAP region were a combination of the two. The view of the Seminar was that although in countries undertaking a limited amount of statistical activity a centralized system would yield effective results, in countries with large amounts of statistical activity a decentralized system of data collection might be more effective. That was particularly so in the wake of a changing environment where more and more data, involving a large extent of disaggregation, were being demanded for planning purposes. Decentralization, however, heightened the importance of co-ordination and standardization of statistical activities. The Seminar concluded that co-ordination could be most effectively ensured through budgetary controls.

36. So far as data processing was concerned, in countries with limited resources and statistical activities it was suggested that a centralized system where costly electronic equipment was used would be most cost-effective. However, the advent of moderately priced microcomputers meant that in countries where a considerable amount of disaggregated data was required, a partial decentralization of data processing by installing microcomputers at subnational levels could yield greater effectiveness.

37. The Seminar also discussed the problem of non-response, which in some countries of the region was 60 per cent or higher for certain data collections. It was recognized that publication of survey results with that degree of non-response could undermine the credibility of the national statistical office, and that statistical legislation making response mandatory was rarely if ever resorted to in practice. The problem was a persistent one, and the Seminar concluded that no solution appeared in sight other than extensive and determined follow-up work by field personnel and vigorous publicity to improve the response rate to a satisfactory level.

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IV. EMERGING STATISTICAL NEEDS THROUGH TECHNOLOGICAL CHANGES

(Item 6 of the agenda)

38. The Seminar had before it two documents for consideration under item 6 the first entitled "Training of personnel in the field of modern data processing technology" (STAT/SWCE/2), presented by Mrs. N. Ya. Panferova of the Central Statistical Board, USSR, and the second entitled "Responding to a changing environment at the international level: case study of the United Nations Statistical Office" (STAT/SWCE/3), presented by a representative of the United Nations Statistical Office.

39. The first document described the system in effect in the USSR for training and upgrading personnel, with a prominent role being played by institutions of higher learning, specialized secondary education, other department-run systems and educational establishments of the Central Statistical Board's Main Directorate for Training and Upgrading Statistical Personnel. The paper concentrated on the role of the Main Directorate, which was an independent self-financing organization directly responsible to the Board. It supervised the training and upgrading of accounts clerks and operators of mechanized accounting equipment, as well as the upgrading of employees of state statistical agencies.

40. The many training complexes and schools of the Main Directorate specialized in areas such as book-keeping, operation and maintenance of computer hardware, designing and operation of automatic control systems and so on. A system of upgrading through refresher courses enabled a broad cross-section of managerial and specialist personnel to be kept up to date on the latest developments in their field, including progress in data processing technology and the introduction of new computer hardware.

41. The paper provided information on a number of courses offered, described the teaching methods used and indicated an emphasis on constant upgrading of teachers themselves. The paper also indicated that the Central Statistical Board provided assistance in vocational training and upgrading systems to a number of foreign countries. That normally involved the holding of consultations, the conduct in the USSR of upgrading courses on a contract basis, the transfer of textbooks and manuals to foreign statistical agencies for the setting up of courses, and the secondment of teachers to foreign countries.

42. The Seminar was informed that it was a requirement in the Central Statistical Board for senior staff, both experts and administrators, to upgrade

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their qualifications every six years. That was achieved through the Main Directorate for Training and Upgrading Statistical Personnel, or through other institutions such as the Moscow Institute of Economics and Statistics. The point was made that while refresher programmes were very useful, some developing countries found it difficult to release their senior staff for such courses because of the shortage of qualified back-up staff to cover the senior persons' absence.

43. In response to a question concerning correlating training programmes with job availability and with future employment of graduates of the Main Directorate, it was stated that planning of manpower needs was undertaken in advance so that the Main Directorate and other institutes knew the requirements of the ministries and other organizations. It trained staff from the Central Statistical Board and other organizations and they returned to employment in those organizations. Unqualified young people who were trained through the Main Directorate were assisted by it to find a position.

44. Many participants indicated that a shortage of computer programmers, systems analysts and other computer-related staff was a serious problem for the national statistical service. Such staff left the national statistical office for other government bodies, for the private sector or to work overseas. In all cases, that was disruptive of the statistical programme. Some countries were trying to solve the problem through bonding of staff to work for a period of years after receiving training, by offering flexible working hours, by permitting computer staff to receive additional income for contractual work, by training statisticians in all aspects of data processing (and vice versa) and by developing computer programme packages that could easily be used by statisticians. It was concluded that augmentation of facilities in all aspects of computerization of data training was clearly an important element of the solution to the problem.

45. The participants exchanged experiences about recruitment processes for national statistical services involving interviews, examinations, reviews of academic qualifications, previous work experience and performance. The Seminar also noted the use of performance evaluations at various stages of career development of the personnel of national statistical services, and in one instance of periodic examinations.

46. The second paper, prepared by the United Nations Statistical Office, described its responsibilities, the world-wide organizational network within which it functioned and the set of intergovernmental policy-making committees whose

decisions determined the economic and social activities of the United Nations, including statistical activities. The paper also described the resources and internal organization structure of the United Nations Statistical Office and the systems for access to essential services that supported its functioning, including computer-related services and printing and publishing services.

47. The paper identified and discussed the pressures for change in international statistical activities in recent years, including (a) examples of intergovernmental policy decisions on development decades and special years and plans of action for specific economic or social activities or population groups of concern to the international community; (b) reconfirmed concentration on improving basic statistical capabilities in countries as the objective of technical co-operation; (c) changes in available technology for processing statistics and disseminating outputs; and (d) changes in country needs, priorities and capacity to absorb and respond to international statistical development. Intensified concern for cost-effectiveness as United Nations budgets had come under pressure had also produced pressure for change in the programmes and methods of the United Nations Statistical Office. The actual changes in the Office's activities, structure and methods in response to the above and other pressures for change were described.

48. The paper also considered the practical limitations to responding to a changing environment and the special actions that had been taken and support obtained from a variety of sources to achieve responsiveness to date.

49. The paper concluded with a consideration of whether the problems in the development of statistics in response to changing conditions for an international statistical organization were basically different from those for a national organization. Changes at the international level could represent a change in the environment for the national offices in terms of placing additional demands on national offices, and influencing the time frame for development at the national level, for example, for introduction of new classifications, definitions, and base years for indexes. Changes at the national level also had an impact on the international statistical organizations, reflecting the fact that national and international statistical organizations in many ways comprised an overall world statistical system.

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50. The participants commented that the United Nations Statistical Office paper was most relevant to the objectives of the Seminar and they welcomed the achievements and current efforts of the Office to identify and respond to changes in the environment at the international and national levels. The usefulness of the Office's statistics was emphasized, especially in providing internationally comparable figures. The large increase in the number of countries and the range of statistical series published was welcomed.

51. The comment was made that even more needed to be done at the international level to identify and analyse changes in country needs and to develop an overall programme to meet those needs. By contrast, it was suggested that there were many demands for new data and that before embarking on new activities, resources needed to be assessed to ensure that enough were available to meet the additional demands.

52. The Seminar noted similarities in the experience of the United States Bureau of the Census and the United Nations Statistical Office in trying to introduce changes under conditions of resource constraints. The Bureau had sought and obtained additional funding from users of statistics, including other government departments and the private sector, to allow new work to be undertaken.

53. Identifying user needs was described in the paper as a major and difficult concern. The comment was made that users should be expected to articulate their needs better. The Seminar was informed that one method of helping to identify user needs and improve responsiveness to them was to set up advisory boards with major user groups, which provided an input into the statistical work programme.

54. It was noted that one of the changes in international statistical collection in recent years had been the use of shared questionnaires by several international organizations, aimed at reducing the reporting burden on countries. The Seminar was informed that that system was working effectively, for example in the fields of national accounts where the Organisation for Economic Co-operation and Development (OECD) and the United Nations Statistical Office were using the same questionnaires, and in energy statistics, where the Statistical Office was using data collected by ECE.

55. The Seminar noted that while a satellite link existed between New York and Geneva, it was not used extensively for statistical work as a real need did not currently exist. However, it was utilized for the transmission of urgently needed statistical information.

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56. The Seminar was given details of an example (in the field of price statistics) where non-availability of data in countries had caused a change in a project of the United Nations Statistical Office to collect and publish those data in an annual publication. However, the limited data collected from about 30 countries were being published in the Monthly Bulletin of Statistics and the Office intended to revert to the subject with an improved questionnaire.

57. Several participants requested details about the Statistical Office's programmes on environment statistics and on social statistics and indicators. The Seminar was informed that the Statistical Office's work on environment statistics was closely co-ordinated with that of ECE. The work was currently focused on methodological matters but also included an assessment of the availability of statistics at the national level on the environmental aspects of fresh water, human settlements and energy, with a view to possible collection and publication of those statistics. It was, however, too early to give any estimates of staff and resource needs to collect and publish environment statistics at the international level. The Seminar was also informed that the Statistical Office's work on the status of women, youth, disabled persons, and crime statistics were at the early stages of research and methodological study, although a data base on statistics on the status of women was being assembled and a statistical publication on that subject would be issued in 1985.

58. The Seminar noted that there were well-developed, relatively uniform concepts and methods in economic statistics but those were less developed in the case of social statistics generally, and in environment statistics. The need for norms in areas such as the environment, poverty, nutrition and literacy was mentioned. The difficulty of setting such norms was recognized and it was felt that in relation to poverty they were a national matter. The Seminar noted the work done in India on defining poverty as well as ESCAP's plan to hold a meeting in 1985 on the subject of statistics of poverty and income distribution.

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V. INTERRELATIONSHIP BETWEEN NATIONAL STATISTICAL OFFICES, PLANNING BODIES AND OTHER ORGANIZATIONS

(Item 7 of the agenda)

59. The paper entitled "Interrelation between national statistical boards, planning bodies and other organizations" (STAT/SWCE/4), by Mr. I. Ya. Matyukcha, was considered under item 7. The document summarized the close and regular relationships between the statistical, governmental, planning and economic bodies of the USSR, at all levels of administrative management from the centre down to the district bodies. As the Seminar had noted earlier, the entire statistical system of the USSR functioned in accordance with a single centralized plan, having standard forms, indicators and reporting systems. That made it easier and more efficient for the Central Statistical Board to carry out its vital function of reporting to the government on the implementation of overall development plans. The latter included five-year and annual plans, as well as longer-term targets.

60. Diversified statistical information was being submitted to planning agencies on a regular basis in various forms. The paper outlined the major types of indicators of economic growth and social welfare involved, and it was stressed that the type and volume of information provided was agreed on by the Central Statistical Board and the planning agencies. The Board took an active role in advising the planners on what information might be needed. Some 50 pages of text and tables were furnished monthly, covering only the major indicators; on an annual basis, certain comparative data with other countries were being provided; special statistical bulletins covering crucial goods such as textiles, and early warning information on situations of emerging concern were also submitted. The Board made every effort to make the indicators as meaningful to the government as possible, rather than empty figures, and in its various reports analysed the reasons for under- or over-fulfilment of plans.

61. The links between statistical and planning agencies in the USSR were strengthened by the fact that data collected by the Central Statistical Board and its various subsidiary bodies formed the basis for the preparation of future five-year and other plans. Statistical bodies at the union and republic levels took part in the revision of drafts of the respective plans, appraising them from the viewpoints of feasibility and internal consistency. That was one example of the general role of statistical bodies in assisting the government to ensure the proper functioning of the national economy.

62. In posing questions to Mr. Matyukcha, participants concentrated on the relationship between the statistical information collected by the Central Statistical Board and that gathered by ministries and departments. It was explained that efforts were made to reduce to a minimum duplication between those sets of data. The ministries needed operational and technological information from enterprises under their control in their efforts to monitor and fulfil plan targets in their particular sector, whereas the Board's information on that sector would be more in the nature of summary statistics. There was regular dialogue between the Board and ministries concerning accounting practices and choice of indicators as well as on the figures themselves. Because of the Board's objectivity, the Government generally used exclusively the information it provided.

63. It was pointed out that the interrelationships between statistical and planning agencies were very close and well-articulated in the USSR whereas that situation did not prevail in several of the developing countries represented at the Seminar. At the same time, it was recognized that interaction between statistical and planning bodies was vital. Among the issues that were cited as currently affecting statisticians in a number of developing countries were the following:

(a) Planners and policy makers were rather unhappy at the non-furnishing of information, and were making demands for data, for example, on income distribution, in excess of the statisticians' capacity to supply them. At the same time, planners generally failed to realize the high costs of collecting statistics, or to give the necessary support to budgetary requests from statistical agencies.

(b) Because planners were impatient to obtain data that statisticians could not supply, they had started to carry out their own surveys, leading to a proliferation of statistical activity. In such a situation there appeared to be a case, especially in decentralized statistical systems, for a co-ordinating body that would circumscribe the right of government agencies to collect statistical data without prior permission.

(c) As for closer and meaningful interaction between statisticians and planners, statisticians in some countries were starting to expand their role from mere data provision to analysis, interpretation and forecasting. However, planners tended to make ad hoc demands for data, whereas statisticians would benefit if data requirements were articulated in advance. It was felt that the outposting of statisticians in planning ministries and, similarly, the outposting

/of statisticians

of planners in national statistical offices for some specified duration, would help remedy that situation. The planners would also be able to realize the expense involved in data collection.

(d) Most national statistical agencies possessed a wealth of data, but sometimes failed to disseminate relevant information in time to the users, that is, planners and decision makers. Statisticians needed to develop a capability to provide "defensible estimates" quickly while awaiting the final figures.

64. The Seminar was informed that the ESCAP secretariat had also identified the above issues as among those of great topical interest to many developing countries of the region. A number of meetings in the secretariat's work programme were designed to address those problems. Participants recognized, however, that it would be difficult to arrive at definite conclusions on all the issues raised within the context of the Seminar.

VI. ORGANIZATION OF AGRICULTURAL STATISTICS
(Item 8 of the agenda)

65. The item was discussed on the basis of the document entitled "Organization of agricultural statistics in the USSR" (STAT/SWCE/5), presented by Mr. L.I. Vaschukov. The paper dealt with the history and organization of agricultural statistics in the USSR, and the existing structure of statistical bodies working in that field. Although agricultural statistics were organized along centralized lines, they were needed mostly at the local level and hence enjoyed a certain degree of flexibility at that level which helped in taking decisions.

66. In describing the main tasks of agricultural statistics at the present time, the paper emphasized the investigation of the interrelations between agriculture and the various branches of the agro-industrial complex. The units of statistical observation included agricultural purchasing, processing, trading and servicing units and some 35 million household plots, as well as the large-scale collective and state farms. Reporting of agricultural statistics was obligatory for enterprises and collective and state farms, and operational reports (containing relatively small amounts of information) were sent to the Central Statistical Board within a very short time via telephone, telex etc. Data tabulation and analysis methods were also described. For detailed and comprehensive data, agricultural and livestock censuses were indispensable, while sampling was widely used to estimate the agricultural production of households.

67. In responding to participants' questions, Mr. Vaschukov stated that only objective mathematical techniques were used in crop forecasting, and remote sensing devices were not being employed for that purpose. The very rapid processing of operational data was facilitated by the use of special statistical forms, specific telegraphic codes and relatively small computers - annual data were processed on mainframe machines. Agricultural statisticians in the USSR were continuing research on certain problems, for example, in the development of capital/output norms.

68. More general issues on agricultural statistics raised by participants included the difficulty of valuing own account consumption of agricultural produce, although it was agreed that that problem had more to do with household income and expenditure surveys. The valuation of certain agricultural inputs, which was needed for national accounts purposes, could be very difficult, especially for smallholdings. It was observed that in some instances production estimates represented an even more pressing need, resort sometimes being made to data on exports. Inter-agency co-operation in conducting agricultural surveys, which in the USSR was achieved through orders issued jointly by the Central Statistical Board and the Ministry of Agriculture, was a serious problem in some countries, with the national statistical agency occasionally being unaware of agricultural surveys undertaken. Timeliness in producing agricultural statistics was also cited as a major problem.

VII. METHODS USED TO ENSURE THE RELIABILITY OF STATISTICAL DATA

(Item 9 of the agenda)

69. The Seminar considered a paper on the above subject (STAT/SWCE/6), presented by Mrs. M.V. Nalimova. The document recalled that statistics in the USSR played a major role in planned economic management and that the Government relied in its activity on the data supplied by State statistical bodies. Thus it was imperative that those data were thoroughly checked and reliable. Ensuring reliability was ultimately the responsibility of the Central Statistical Board and its subsidiary bodies, which utilized uniform principles and methodology in the collection and reporting of data.

70. Timeliness and accuracy of reporting depended initially on the quality of the initial accounting, and the various forms used in that connection were described. Information received from enterprises by statistical bodies was

subject to checks for both arithmetic and logical consistency, which were carried out by specialized economists. Methods used to improve the accuracy of reporting included consultations and seminars with accounting specialists of enterprises, collective farms, government departments etc; the addressing of instructional letters to enterprises and organizations; moral and material incentives to bodies and individuals for exemplary performance; and disciplinary measures such as reprimands, reduced bonuses, fines, moral censure, and possibly criminal prosecution.

71. Statistical bodies also informed departments and ministries on the reliability of data reported by the enterprises and organizations they ran. Joint comprehensive check-ups by the statistical bodies and sectoral ministries concerned were particularly effective as they drew on different types of expertise. Statistical bodies also co-operated with public auditors' groups in improving accounting practices and strengthening reporting discipline. In recent years, statistical bodies had also been supervising large-scale check-ups on territories (districts and cities), chosen on the basis of the reliability of their data. Check-ups of all types, including those at the enterprise and at the ministerial level, had to contain proposals to remedy the shortcomings and distortions exposed. State statistical bodies made use of the media to publicize uncorrected distortions as well as to promote improved accounting and reporting practices.

72. In responding to participants' questions, Mrs. Nalimova confirmed that if a sample check-up revealed errors in a census, the data would be amended and corrected information sent to the original recipients. It was pointed out that bonuses and incentives for good performance were not restricted to the field of statistics. As to the number of persons involved in check-up work, it was explained that there were no special units responsible, either at the central or lower levels; rather, the work of checking was generally handled on an industry basis, by the relevant specialized statisticians.

VIII. SOCIAL AND ECONOMIC SURVEYS IN THE USSR
(Item 10 of the agenda)

73. The item was discussed on the basis of the document entitled "Sample socio-economic surveys in the USSR" (STAT/SWCE/7, presented by Mr. D.I. Dumnov. In the paper it was noted that in the USSR wide use was made of sample surveys, for which a number of basic requirements, such as a sufficiently representative sample, had to be met. The aims of a particular sample survey had to be clearly formulated, and special attention paid to sampling techniques and to the anticipation of possible problems.

74. Sampling was being extensively used in various branches of statistics, especially in the fields of agriculture, social affairs, public health and culture. It had also been used in conjunction with the 1979 population census, and a major intercensal sample survey was scheduled for January 1985. The document concentrated, however, on family budget and income surveys, which now covered 62,000 families on a fully voluntary basis and were carried out on a monthly basis throughout the year. Statisticians collected family budget data through direct confidential questioning of family members and examination of specially-designed income and expenditure diaries filled in by participating families; such a method had been gaining recognition outside the USSR.

75. The selection of families for budget surveys was a two-stage process, ensuring a representative sample of workers (and pensioners) of industrial enterprises, offices and collective farms. Average wages of the sampled families had to correspond roughly to average wages in the respective industries. Some 2,500 indicators were derived from budget surveys and stress was laid on the balancing of certain indicators (for example, spending and income) to check the reliability of the data.

76. The USSR was also conducting, each March, sample time budget surveys to derive statistics of time use. Broad variations had been found between the time use of men and women, of urban and rural populations, and between the USSR and Finland. A report on time-use surveys had recently been sent to the United Nations Statistical Office. In those and other, single-time, sample surveys, use was being made of the sample frame of 62,000 families used for budget statistics.

77. In responding to participants' questions, Mr. Dumnov stated that 10 per cent of each budget survey sample selected had to be replaced, because workers had inter alia left the enterprise in question, or moved elsewhere, or failed to co-operate. Each departing family was replaced by another with as similar as possible demographic characteristics. As to the initial selection of sample families, after a particular factory or farm had been chosen, every fiftieth worker was selected; a meeting was called to explain what participation in the survey entailed, and there was an opportunity for families to withdraw from it. The point was made that the exclusion of non-co-operating families could introduce a bias when the budget survey sample frame was used for surveys involving public opinion.

/78.

78. About one third of the 2,500 indicators in the budget survey were checked each month. Many republics within the USSR translated the survey forms into local languages. It was noted that while alcoholic beverages were covered in the family budget surveys, the time spent consuming them did not always show up correspondingly in time-use studies.

IX. PROVISION OF THE LOCAL ADMINISTRATIVE BODIES WITH STATISTICAL INFORMATION USING MODERN TECHNIQUES OF DATA COLLECTION AND PROCESSING

(Item 11 of the agenda)

79. The item was considered on the basis of a paper entitled "Provision of top management bodies of the Byelorussian SSR with statistical information using modern methods of data collection and processing" (STAT/SWCE/8), presented by Mr. V.N. Nichiporovich. He briefly described the history and economic and social development of the Byelorussian SSR. Its Central Statistical Board comprised inter alia its central offices, the statistical boards of the Republic's regions and of the city of Minsk, statistical inspectorates in districts and towns, and computer centres and other institutions. Paralleling functions at the Union level, the Board in the Byelorussian SSR monitored performance in relation to plans in all spheres of production; its relations with governmental, planning and economic bodies were also analogous to those at the central level. The general statistical methodology developed by the Central Statistical Board of the USSR was followed, but was complemented by various types of information of special relevance to local conditions.

80. The paper described information flows and reporting frequencies within the republic, along with the organization of statistical data collection, processing and dissemination. As the major volume of data collected was processed during the first five days of each month, the computer centres of the Byelorussian Board system were able to sell time to other organizations and ministries. The report also dealt with the problems of personnel training and upgrading of both the computing network and the statistical system of the Byelorussian SSR.

81. Special attention was being paid to obtaining data on the production of households, employing in part the system of budget surveys described earlier at the Seminar. Censuses of population, cattle, machine tools etc., were other important items of the Board's work. The Board worked very closely with the republic's planning bodies, but enjoyed a certain degree of autonomy; there

/were

were occasional differences of opinion between statisticians and planners, for example, in evolving estimates of economic development.

82. In responding to participants' questions, Mr. Nichiporovich explained that software protection and other systems prevented unauthorized access to confidential statistical information by outside users of the Board's computer facilities. Family budget data produced certain difficulties because some information on the private sector was inevitably missed in surveys, but the discrepancies were only of the order of 5 per cent. It was noted that while Byelorussia and other republics enacted their own statistical legislation, it was modelled on that regulating the Central Statistical Board of the USSR and differed mainly in relation to operative information, for example, to reflect different crops produced in various areas.

83. The Byelorussian Board estimated the national income of the Republic, using the same methodology as the Central Statistical Board of the USSR, and constructed an input-output table every five years. In that context, it was stated that data were available from agencies dealing with goods imported to and exported from the Republic, while the marketing of products was done centrally rather than at the republic level. The Byelorussian Board's work in the fields of education and environment statistics was also elaborated on. Although the Byelorussian economy had expanded rapidly and new industries and products had generated demands for new data, that had not necessarily entailed a larger volume of information. The Board was constantly reviewing and simplifying accounting forms and had reduced the number of economic indicators by 25 per cent, deleting those which had lost their utility in the current context. Also, owing to the increased use of computers, the Board had not found the necessity to augment the number of its personnel.

X. AUTOMATED PROCESSING OF STATISTICAL INFORMATION UNDER PRESENT CONDITIONS

(Item 12 of the agenda)

84. The Seminar considered the document entitled "Organization of information collection and processing by the USSR state statistical agencies under modern conditions" (STAT/SWCE/9), prepared by Mr. S.N. Bushev and Mr. A.P. Maslyanenko. The complex computational network of the Central Statistical Board of the USSR, which comprised computer centres or stations at the union, republic, regional and district levels was described in the paper. The collection and processing of

/statistical

statistical information were organized on the basis of the automated system of state statistics, which was currently being set up.

85. The automated system had two types of subsystem functional and support. The first included both branch functional subsystems concerned with individual economic sectors and industries, and inter-branch subsystems dealing with input-output tables, statistics of finances and prices, and so on. Support subsystems of the automated system included information and programme (software) support, as well as two more complex support systems, the Automated Data Bank and the System of Telemetric Processing of Statistical Information.

86. Within the automated system, the standardization of primary statistical documents helped avoid the duplication of information, while 14 national standard classifications were used in statistical reporting. The technological base of the automated system was versatile in terms of its purpose, as it was designed not only to handle statistical problems, but also to process a large volume of non-statistical information for enterprises and ministries with no computer base of their own. Three main technologies were used for the computerized processing of statistical data: decentralized technology for the processing of voluminous, mailed returns of a regular, relatively non-urgent nature; centralized technology for the processing of large ad hoc surveys; and a combination of the two for the processing of report forms with limited amounts of urgent information.

87. The Seminar noted that the versatility and complexity of the automated system made the unifying elements such as standard reporting forms and classifications essential. The fact that verification of data was carried out as close as possible to the reporting unit was felt to be a sound feature of the system. In responding to participants' questions, Mr. Bushev explained that the capacity of the Central Statistical Board's computer system had been designed from the start to cope with peak statistical workloads; hence for much of the time spare capacity existed for contractual work for other organizations. Occasionally overall demand for programming resources outstripped supply, particularly because similar programmes had to be written for several different types of computer. Software was produced for the small number of imported machines as well as for domestically-manufactured computers. Maintenance was handled in a centralized fashion.

88. It was noted that about half the districts in the USSR were equipped with mini- or microcomputers. Mainframe machines were confined to the regional and higher levels. While there were direct connections between some computers, that work had not yet been completed. In processing a large survey, the time-lag in publishing the results would normally be around one month, but could be longer.

89. The Seminar observed that in at least one developing country of the ESCAP region, while hardware and software were under the control of the statistical system, computer personnel belonged to another organization. That posed a number of difficulties for the statistician, including obstacles in designing and amending questionnaires. The problem was less acute in the USSR, as the computer and statistical systems were integrated. The Seminar concluded that EDP specialists and statisticians could not remain in watertight compartments, and it reiterated that training of statistical personnel in computer programming and vice versa was a prerequisite for overcoming that problem.

XI. ORGANIZATION OF ENVIRONMENT STATISTICS

(Item 13 of the agenda)

90. Under item 13, the Seminar considered the paper entitled "Organization of ervironmental statistics under modern conditions" (STAT/SWCE/10), presented by Mr. A.I. Krakovsky. The paper noted that the problem of protecting the environment had become more and more acute over the past decade; along with many other countries, the USSR had enacted a number of laws governing the use of land and water resources, the prevention of pollution and the protection of wildlife, as well as special decrees covering major resource areas.

91. The organization of statistical information on the environment in the USSR shared many of the characteristics of statistics in other fields, including the use of data to monitor implementation of the State's environmental plans. It was stressed that the environmental information collected by the Central Statistical Board at its various levels flowed horizontally to the relevant decision-making bodies at each level, as well as vertically. Relevant statistics were also collected and processed by certain ministries and departments, such as those of land reclamation and water economy, agriculture, fisheries and so on; generally those data were transmitted to the Board for further processing and summarization. The Board had developed a set of eight indicators relating to natural resources and the environment, basing them on the most important

current ecological issues. Apart from figures relating to water resources, the atmosphere, land utilization, forests and nature preserves, the indicators included expenditures on environmental protection measures and facilities, which currently exceeded eight billion roubles annually.

92. In answering participations' questions, Mr. Krakovsky explained that data on air pollution and noise pollution were gathered, although not always on standard forms. The Seminar was informed that many of the environmental laws passed by the Government of the USSR stemmed from the recommendations of the first United Nations Conference on the Human Environment held at Stockholm in 1972, but it was not possible to say how many of that Conference's recommendations had been implemented. Similarly, it was difficult to give exact costs of alternative means of disposing of industrial and household wastes, although a number of new methods were currently under study.

93. The Seminar noted that the environment was a multidisciplinary field in which interaction between statisticians and a wide range of scientific specialists was inevitable if environmental data were to be collected and analysed effectively. It was suggested that statisticians had a particular role to play in designing a framework for organizing statistics relating to the environment, and in determining various norms, for example, on air and water pollution, which would help countries to strike an ecological balance.

XII. ADOPTION OF THE REPORT
(Item 14 of the agenda)

94. The Seminar adopted its report on 5 October 1984.

/Annex

Annex

LIST OF DOCUMENTS

Document No.	Title
STAT/SWCE/L.1	Provisional agenda
STAT/SWCE/1	Organization of State statistics in the USSR
STAT/SWCE/2	Training of personnel in the field of modern data processing technology
STAT/SWCE/3	Responding to a changing environment at the international level: case study of the United Nations Statistical Office
STAT/SWCE/4	Interrelation between national statistical boards, planning bodies and other organizations
STAT/SWCE/5	Organization of agricultural statistics in the USSR
STAT/SWCE/6	Methods used to ensure reliability of statistical data
STAT/SWCE/7	Sample socio-economic surveys in the USSR
STAT/SWCE/8	Provision of top management bodies of the Byelorussian SSR with statistical information using modern methods of data collection and processing
STAT/SWCE/9	Organization of information collection and processing by the USSR state statistical agencies under modern conditions
STAT/SWCE/10	Organization of environmental statistics under modern conditions

Document No.	Country papers
STAT/SWCE/CRP.1	Afghanistan
STAT/SWCE/CRP.2	Bangladesh
STAT/SWCE/CRP.3	Bhutan[a/]
STAT/SWCE/CRP.4	China - Development and improvement of China's statistical work in the recent five years
STAT/SWCE/CRP.5	India - Development of statistics in a changing organizational and technological environment
STAT/SWCE/CRP.6	Islamic Republic of Iran - A review of the statistical system in the Islamic Republic of Iran

a/ Not distributed at the Seminar.

Document No.	Country papers
STAT/SWCE/CRP.7	Lao People's Democratic Republic - A summary of statistical work in the Lao People's Democratic Republic a/
STAT/SWCE/CRP.8	Malaysia
STAT/SWCE/CRP.9	Mongolia - Statistical services in the Mongolian People's Republic
STAT/SWCE/CRP.10	Nepal
STAT/SWCE/CRP.11	Philippines - The economic and social indicator system of the Philippines
STAT/SWCE/CRP.12	Republic of Korea - The organization of statistical work in Korea
STAT/SWCE/CRP.13	Sri Lanka - Statistical organization and data collection and processing systems and problems encountered in the development of statistics in Sri Lanka
STAT/SWCE/CRP.14	Thailand - A brief description of the organization of statistical services in Thailand by the Statistical Techniques Division, National Statistical Office, Bangkok

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STAT/SWCE/CRP.15	Information on the activities of the CMEA Standing Commission on Co-operation in Statistics

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Committee on Statistics

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DEVELOPMENT OF ECONOMIC STATISTICS

(Item 6 of the provisional agenda)

EMERGING ISSUES IN THE SYSTEM OF NATIONAL ACCOUNTS AND IN STATISTICS OF MAJOR ECONOMIC SECTORS

Note by the secretariat

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A. National accounts

1. The original United Nations System of National Accounts and Supporting Tables (SNA) was published by the United Nations Statistical Office in 1953. This manual provided the basis for international reporting and served as an aid to the development of statistical programmes in member countries. In the second edition, published in 1959, only minor revisions were introduced.

2. The System of National Accounts underwent further revision and subsequently the Statistical Commission approved the publication of the revised SNA[1/] at its fifteenth session in 1968. Around 1975, the Statistical Office of the United Nations began a review of country experiences in implementing SNA. A series of interregional and regional seminars on SNA were held from 1975 to 1980.[2/] A preliminary report on the findings of the review was presented to the Statistical Commission at its twentieth session in 1979.

3. Two expert group meetings were convened, one in 1980 and the other in 1982, to discuss the general direction of further work on SNA. Both these meetings stressed the importance of clarifying the System and the need to improve its consistency with other international standards in statistics. It was concluded that modifications should safeguard the continuity of the efforts to implement the System and preserve the continuity of time series.

4. In considering the future development of SNA, the 1982 Expert Group concluded as follows:

"(a) That major developments in SNA remained to be undertaken - referring both to the problems discussed in the meeting, as well as others which had not yet been fully articulated or which might emerge in the future;

/"(b)

1/ A System of National Accounts (United Nations publication, Sales No. E.69.XVII.3).

2/ It was not possible to organize such a seminar in the ESCAP region, although several meetings of an expert group on national accounts had been convened in the late 1960s.

"(b) That there was a continuing need for the clarification, modification and extension of SNA;

"(c) That any major revision should not be undertaken as a continuous adjustment, but it should rather be accomplished by a single target date, possibly 1990. To reach such a target, agreement would be needed some years in advance of that date, say by 1985, and this implied that work must start in the near future;

"(d) That certain extensions of the system (e.g. non-market imputations) and a number of clarifications and minor modifications should be undertaken as soon as possible ...;

"(e) That work on the harmonization of the standards of the different international organizations should continue and should have a high priority;

"(f) That 14 years after the publication of SNA, progress in the developing countries in the compilation of various accounts and their availability for use in development planning and policy was far from satisfactory."[3/]

5. The Expert Group also examined issues regarding the harmonization of SNA guidelines with other international standards on external transactions, public sector statistics, monetary statistics and flow of funds, and income distribution statistics, as well as activity classifications and input-output studies.

6. Subsequent to the expert group meeting in 1982, the Inter-Secretariat Working Group on National Accounts was established with the participation of the United Nations Statistical Office, the Statistical Office of the Organisation for Economic Co-operation and Development (OECD), the Statistical Office of the European Communities (SOEC), the International Monetary Fund (IMF) and the World Bank. The Working Group has convened several meetings since its establishment in 1982 to identify topics to be included in the SNA review, to co-ordinate work programmes concerning the conceptual development of national accounts, and to outline a strategy for the revision of SNA by 1990.

/A.

3/ E/CN.3/1983/5, para. 4.

A consolidated work programme indicating the agencies responsible for the various topics is as follows:

A. Structure and sectoring of SNA

1. Structure of SNA (OECD)
2. Links between macro and micro data (SOEC)
3. Country practices in institutional sectoring (OECD/United Nations Statistical Office)
4. Unincorporated enterprises (SOEC)
5. Private non-profit institutions serving households (SOEC)
6. Statistical units (OECD)
7. Social accounting matrices (SAM) (World Bank).

B. Price and quantity comparisons

1. Use of chain indices in national accounts (SOEC)
2. Terms of trade (SOEC/OECD/World Bank/United Nations Statistical Office)
3. Deflation in time and space (SOEC).

C. Public sector accounts

1. Reconciliation and/or harmonization of Government Finance Statistics (GFS) and SNA standards with regard to government accounts and tables (United Nations Statistical Office/IMF)
2. Own account production of general government and department enterprises (SOEC)
3. Classification of activities and purposes (SOEC/United Nations Statistical Office)
4. Social security arrangements (IMF).

D. External transactions

1. Reconciliation and/or harmonization of balance-of-payments and SNA standards with regard to external transaction data (United Nations Statistical Office/IMF).

/E.

E. Household sector accounts and income distribution statistics

1. Revision of income distribution statistics guidelines and standards for the household sector accounts in SNA (United Nations Statistical Office/World Bank)

2 Informal activities (United Nations Statistical Office, World Bank, OECD)

3. Final consumption expenditure of households and of Governments (SOEC)

4. Subsidies (SOEC)

5. Income measures (SOEC)

6. Pensions and life insurance transactions (OECD)

7. Interest (OECD/United Nations Statistical Office).

F. Financial flows, balance sheets and reconciliation accounts

1. Draft supplementary guidelines for statistics of financial flows, balance sheets and reconciliation accounts with SNA (United Nations Statistical Office)

2. Bridge table between SNA and the IMF draft "Guide to money and banking statistics in international financial statistics" (United Nations Statistical Office/IMF)

3. Classification of financial assets and liabilities (IMF)

4. Inflation accounting (SOEC/OECD)

5. Depletion of subsoil assets (United Nations Statistical Office/OECD)

6. Financial leasing (SOEC).

G. Production accounts

1. Handbook of National Accounting (United Nations Statistical Office)

2. SNA input-output standards (United Nations Statistical Office)

3. Services (OECD).

H. Reconciliation with other accounting systems

1. Regional accounts (SOEC/United Nations Statistical Office)

/2.

2. Quarterly national accounts (OECD)

3. Development of the System of Balances of the National Economy (MPS) and study of SNA-MPS links (United Nations Statistical Office/CMEA (Council for Mutual Economic Assistance)).

7. The Inter-Secretariat Working Group on National Accounts recommended that the SNA review should take place along the following lines:

(a) Studies on the topics concerned should be discussed at regional meetings at which national statistical offices would be represented;

(b) Expert group meetings should be convened, each of which would take up a group of subjects;

(c) One or a few expert group meetings should be held to integrate the recommendations of the separate expert group meetings into a revised version of SNA that would take into account the required consistency of the various elements of the national accounting framework. The approximate timing of the above group activities was planned for 1983-1985, 1986-1988, and 1989-1990, respectively.

8. In the ESCAP region, SNA is the most widely used framework for the presentation of macro-economic data, and has provided essential information for economic and social development planning. ESCAP members are mainly developing countries which vary in the stage to which their statistical capabilities have been developed. It is thus important that the views and needs of these countries should be incorporated in the SNA review.

9. At the global level, the Statistical Commission has been devoting increasing attention to the situation of developing countries in the process of revising the SNA. At its 1983 session, it decided that high priority should be assigned in the revision to selected non-market imputations and the distribution of income, topics which were particularly relevant to developing countries. As mentioned in paragraph 11 of document E/ESCAP/STAT.6/3, the Statistical Commission, at its twenty-third session in 1985 recommended that special attention should be paid to the difficulties faced by developing countries, and that international

/organizations

organizations should provide handbooks and various other forms of technical assistance to help the developing countries apply both the current SNA and its successor.

10. Of the various aspects of SNA currently under review, the Statistical Commission identified several as being of special importance to developing countries. Those included subsistence activities, public sector accounts, dual sectoring and subsidies designed to redistribute income to particular groups of consumers. It was also suggested that the next version of SNA should distinguish small-scale "informal" producers from large-scale "modern" enterprises. Some representatives at the session noted that the current SNA was still not being fully implemented by all countries, owing to the weakness of basic information; one conclusion that could be drawn was that the next revision should be simpler to apply and easier to understand. The Statistical Commission agreed that in the next revision of SNA, it would be important to take full account of both the analytical needs and the statistical possibilities of developing countries.

11. The regional commissions have been requested to contribute to the work of revising the SNA on an active basis. Moreover, the Committee on Statistics at its fifth session indicated that the whole range of work on national accounts should receive priority, and that technical meetings should be convened. ESCAP had therefore planned to organize a seminar on review and development of national accounts in early 1985. As suggested by the Committee, the secretariat has also requested statistical organizations in the region to provide their views on the revision of SNA, in part as an input into the seminar. Unfortunately, owing to funding difficulties, the seminar has had to be postponed to early 1986; the secretariat is making concerted efforts to obtain extrabudgetary financial support for this activity, and will give the Committee an updated report on its status.

12. The countries which responded to the enquiry reported that the following areas, among others, would need attention in the revision of the SNA. While a detailed technical discussion of the issues would be carried out more appropriately in the seminar proposed to be organized for that purpose, in view of the subject's importance it would be helpful for the Committee to give its comments and suggestions.

/(a)

(a) Private non-profit institutions serving households

It has been suggested that non-profit institutions serving households should be treated as a sub-sector of households rather than as a sector on their own.

(b) Statistical units in SNA and the International Standard Industrial Classification of all Economic Activities (ISIC)

The 1968 SNA provided a definition for all transactor units involved in economic activity and set this into a framework which ensures consistency between the various types of units and between transactors and transactions and their classifications. The ISIC provides a more detailed description of units. However, it envisages differing units for different industrial activities and does not present a rigorous statement of the relationship between types of units. It was suggested that more explicit instructions for interpretation were necessary to further statistical integration.

(c) Classification of construction activity

In developing countries in the region, construction activities carried out by petty contractors and by households themselves are substantial. Data on these construction activities are difficult to gather, and especially when construction materials are produced by the households themselves. There may therefore be a need to examine the classification and data collection methods for construction activity.

(d) Unincorporated enterprises

Unincorporated public enterprises with identifiable accounts are classified as "industries of government" according to the present SNA. It has been suggested that this classification may be subject to a further criterion on the level of subsidies. Those enterprises for which subsidies amount to a large proportion of the production cost might be classified as producers of government services.

It has also been suggested that unincorporated private enterprises should be classified into two sub-sectors, "Household enterprises" and "Non-household enterprises", depending on whether the accounts can be identified separately from those of other activities of the households. Under this criterion, "Household enterprises" refer to economic activities

of which the accounts are combined with those of other activities of household, while "Non-household enterprises" are those where separate accounts are maintained.

(e) Definition of general government

It has been suggested that the definition of "General government" should be elaborated to avoid ambiguity. The SNA should also provide sufficient guidelines to ensure similar treatment, in different countries, of producers of government services and government final consumption expenditure.

(f) Terms of trade

The issues of making a terms of trade adjustment to GDP at constant prices are complex and beset with both practical and theoretical problems; these need to be examined.

(g) Presentation of external transaction accounts

To link the external transactions account with other accounts in the SNA, imports of merchandise are valued c.i.f. (cost, insurance, freight), inclusive of insurance and freight services provided by resident industries of the importing country. These services are recorded as exports for balance-of-payments compilation. This could cause confusion. It has been suggested that the presentation of external transaction accounts should be reviewed.

(h) Imputed bank service charges

The present SNA recommends that imputed bank service charges should be treated as intermediate consumption of a nominal industry. Such treatment understates the GDP value, especially in those countries which have extensive international banking operations. It also creates problems, especially in the compilation of input-output tables. It has been suggested that the method of imputing bank service charge as well as the allocation of such imputations should be reviewed.

(i) Pensions and insurance

Some business employers adopt retirement allowance schemes and they administer these funds in their own accounts. The employers' contributions to the fund are regarded by them as compensation of

employees and the employees have a legal right to the funds. The question of treatment of the increase or decrease in funds owing to the payment of retirement allowances arises. It appears doubtful that the net change in the reserves should be classified as a change in "net equity of households on life insurance reserves and on pension funds" in the capital finance accounts, since this financial item represents the transactions between households and financial institutions. The funds may perhaps be treated as other financial assets of households.

It has also been suggested that the treatment of pensions and insurance in SNA is rather cumbersome and needs to be simplified.

(j) Subsidies

Public corporations may be granted subsidies to keep the prices of commodities, such as food grains, at a low level for the benefit of consumers. Although the grants are paid directly to the corporation, the benefits of such grants accrue to the consumers. It has been suggested that the treatment of such grants, which are given as a result of government policy, needs to be examined.

(k) Consumption of fixed assets

The estimates for consumption of fixed assets in most countries are based on depreciation allowances allowed by the tax authorities. Depreciation allowances are granted for the use of land, such as for the use of earth for making bricks (depletion of land resulting in a reduction of its value). Such land is not treated as a fixed asset in the SNA; the treatment of these and similar cases needs to be clarified.

(l) Capital loss

Capital losses due to unforeseen obsolescence of fixed assets, and natural calamities such as earthquakes, floods and cyclones or as a result of war, are not included in the consumption of fixed capital in the SNA. Some of these capital losses cannot be quantified in surveys, as they may be netted out when the capital formation data are estimated. The proper treatment of such cases needs to be clarified.

(m) Measurement of output and its valuation

In terms of coverage, certain types of economic activities are difficult to quantify and are thus understated or ignored in the compilation framework. Some examples are the output of shipowners,

transactions relating to second-hand goods, and activities in the informal sector. As regards concepts, definitions and method of estimation, the SNA does not deal with the estimation of outputs of real estate development and financial leasing activities very explicity. Besides, the estimation of the real outputs of services presents problems in the compilation of constant price estimates. In particular, it has been suggested that the estimation of the real output of financing, insurance, real estate and business services and of community, social and personal services needs to be examined and that more specific guidelines are required in the revised SNA.

In the present SNA, subsistence production covers only the primary sector and own account construction. It has been suggested that studies need to be undertaken to consider covering the unpaid services of households as well as the services of consumer durables.

(n) Rent on factories and business premises

In the compilation of input-output tables and the public sector accounts, the present SNA recommends that rent should be treated as a commodity. The inclusion of rent as an intermediate input into the production process will influence the data on value added of the establishments, depending on whether the office or factory premises are rented or owned. For the sake of consistency, it has been suggested that rents for owner-occupied factory or business premises may need to be imputed. Alternatively, rent might be treated as a non-commodity item.

(o) Human capital formation

Human resource development accounts for a significant amount of development expenditure. It has been suggested that a concept of "human capital development" should be introduced and that studies be made to include part of the expenditures on education, health and other relevant expenditures on human resource developments in human capital formation as a subgroup of gross capital formation.

(p) Quarterly accounts

The current SNA indicates the desirability of compiling certain types of data on a quarterly basis. In some of the developing countries of the region, even annual data are not available on a regular basis;

/preparation

preparation of quarterly accounts at the present time appears too ambitious. Some countries may perhaps wish to prepare biannual accounts.

(q) Other matters

It has been suggested that national accounts statistics as illustrated by SNA are complicated and difficult to comprehend. A simplified illustration of the system would facilitate the use of such data by general users and policy makers.

13. The above issues and others, such as the treatment of allowance for bad debts, the choice between cash basis and accrual basis for income estimation, the treatment of government revenue on purchases by households of goods and services produced by government, the estimation of provincial and subnational accounts, and a host of other topics relevant to the region, will be subjects for discussion in the revision of SNA.

14. The Committee is invited to provide guidance and suggestions on how regional requirements could be properly included and reflected in the revision of the SNA targeted for completion in 1990, as well as the role ESCAP should play in this regard.

B. Other economic statistics

15. Aside from the various issues relating to the revision of SNA, the reliability of any national accounting aggregates will obviously depend on the quality of statistics used as inputs. The source data need to be of reasonable quality in order to produce acceptable national accounts statistics. In this regard, the adequate quantification of the contribution to GDP of economic sectors such as industry, transport, trade and so on needs to be reviewed.

Transport statistics

16. Virtually every aspect of the economy depends to a certain extent on transport facilities. Reliable statistics on transport are required for several purposes, including an estimation of the cost of transport for the compilation of national accounts statistics. With the exception of economic statistics on shipping, work on improving and harmonizing transportation statistics at both national and international levels has so far received low priority. In fact, a manual on transport statistics was produced by the United Nations Statistical Office in 1951 but this version

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has yet to be revised, despite the tremendous development in transport vehicles and modes of transport over the last three decades.

17. Recognizing the need for an integrated approach to the planning of transport and communications development, the Economic and Social Commission for Asia and the Pacific, at its fortieth session, proclaimed the Transport and Communications Decade for Asia and the Pacific, 1985-1994. In support of this proclamation and in view of the need to develop transport statistics in national statistical systems, the secretariat has formulated or revised project proposals for two activities: a workshop on transport statistics, and advisory services on transport statistics. The Committee may recall that the need for a workshop on transport statistics has been recognized for many years, but funds have not been forthcoming to date. It appears likely, however, that such a meeting can be organized in 1986 under the United Nations regular budget for technical co-operation, with host facilities being provided by the Government of the Union of Soviet Socialist Republics. Advisory services on transport statistics could only be undertaken through extrabudgetary support, and the secretariat is now reviewing possible sources of funds. The Committee is invited to give its views on these projects and provide guidance on the course of action to be adopted by the secretariat in the development of transport statistics in the region.

International trade statistics

18. International trade statistics is one of the most developed branches of economic statistics in the region. Following its earlier work on improving and harmonizing trade statistics, the secretariat initiated in 1981 a project to prepare a manual for the compilation of international trade statistics in the ESCAP region. A draft manual was produced in 1982, and a revised manual incorporating the views of the expert group meeting held in 1983 is now available for distribution.

19. Although many conceptual problems in international trade statistics have been resolved, some national statistical series on international trade have not been timely owing to the large volume of documents needed for data compilation. For many operational purposes, trade data must appear promptly. The problems lie in both data preparation and data processing. It is envisaged that with the upgrading of data processing skills, the time-lag in disseminating trade data may be shortened.

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20. The first and second revisions of the Standard International Trade Classification (SITC) enjoyed a close correlation with the Customs Co-operation Council Nomenclature (CCCN). A revised CCCN, together with the new HS (Harmonized Commodity Description and Coding System) being developed under the auspices of the Customs Co-operation Council, is scheduled to become effective on 1 January 1987. The need to maintain a close correlation with CCCN and to establish a relationship with HS has led to the revision of SITC. The third revision of SITC has taken into account the need to harmonize, to the extent possible, with the International Standard Industrial Classification of All Economic Activities (ISIC) and the draft Central Product Classification (CPC) drawn up by the United Nations Statistical Office/SOEC Joint Working Group on World Level Classifications. It will, however, retain the basic character and structure of SITC. As with the previous versions of SITC, the third revision may be expanded or contracted depending on local conditions.

21. As noted in the annex to document E/ESCAP/STAT.6/3, the Statistical Commission (and subsequently the Economic and Social Council) has recommended that Governments should report internationally their external trade data on the basis of SITC, Rev. 3, as far and as soon as possible. It is realized that countries may not wish to make this change until they review their customs tariff nomenclature in the light of HS. The United Nations Secretariat is to publish SITC Rev. 3 along with commodity indexes and correlation codes to the CCCN, HS and BEC (the Classification by Broad Economic Categories). The aim is that SITC data published by the United Nations for 1988 should be, as far as possible, in the form of SITC, Rev. 3. The Committee may wish to comment on these recommendations and arrangements, and provide guidance on other possible steps to achieve better international comparability of external trade statistics.

Energy statistics

22. The vital role of energy statistics in the assessment of the current energy situation and as an indispensable tool for planning and decision-making can hardly be overstated. The ESCAP Committee on Statistics, at its fourth session held in June 1981, stated that "training in the field of energy statistics was essential and of the highest

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priority".[4/] Accordingly, as reported to the Committee at its fifth session, the secretariat organized an expert group meeting from 25 to 29 October 1982 to devise a detailed programme and curriculum for a four-week training course. Subsequently the course was organized from 26 September to 21 October 1983 at the Asian and Pacific Development Centre (APDC) in Kuala Lumpur. It was organized in association with SIAP and APDC and with financial support from the United Nations Development Programme (UNDP) through the regional energy development programme. The curriculum covered measurement of energy in its various forms, collection of data and construction of energy balances. A report on the training course was distributed earlier to national statistical offices of the region; additional copies are available on request.

23. As mentioned in document E/ESCAP/STAT.6/6, SIAP has conducted a number of activities in the field of energy statistics, including an advanced course in 1984 and a country course in Pakistan in 1985.

24. To further improve energy planning capabilities in member and associate member countries, the secretariat has acquired the services of an adviser in energy statistics. The adviser is financed through the regional energy development programme, which is funded by UNDP. The adviser is scheduled to join the secretariat on 30 September 1985. His services can be made available free of charge to Asian countries. The Pacific energy development programme (PEDP) will contribute to the cost of missions undertaken by the adviser to the Pacific countries. The Committee may wish to comment and suggest additional activities for developing energy statistics in the region. In this connection it is planned to hold, tentatively in early 1987, a workshop to review international recommendations on energy statistics.

Economic statistics of shipping

25. At its twenty-sixth session in April 1970, the Economic and Social Commission for Asia and the Pacific endorsed the secretariat's proposal to develop a uniform system of economic statistics of shipping. The secretariat has since developed the methodology of such a system (the L.2 scheme) and assisted a number of countries in its implementation. The

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4/ E/ESCAP/STAT.4/23, para. 84.

Statistical Commission of the United Nations Economic and Social Council, at its twentieth session in February 1979, discussed the uniform L.2 scheme and decided that it should be promoted among all developing countries, including those outside the Asian and Pacific region. In addition, it invited interested countries, including developed countries, to examine the possibility of adopting the framework of the system.[5/]

26. Since the fifth session of the Committee, a series of mobile workshops on shipping statistics have been held in the capitals of the member countries of ASEAN in July and August 1983. The secretariat also organized a Regional Seminar on Economic Statistics of Shipping at Beijing in June 1984. The meetings recommended, inter alia, that the secretariat should (a) organize further follow-up study exercises to exchange experience in the implementation of the L.2 sheme among members and associate members in the region, and (b) continue to provide advisory services in the implementation of the L.2 scheme.

27. The secretariat published the third edition of the "Uniform system of economic statistics of shipping (L.2 scheme)" in 1984. It has also published a draft handbook, the contents of which have subsequently been discussed in the various workshops and seminars on the subject organized by the secretariat. The suggestions and recommendations made therein will be incorporated in the handbook, which will be published in due course.

Industrial statistics

28. The 1983 World Programme of Industrial Statistics was promoted by the United Nations Statistical Office to encourage the orderly development of national inquiries into the structure and activity of the industrial sector. In support of this programme, the secretariat, through the financial support of the Government of the Federal Republic of Germany, acquired the services of a regional adviser on industrial statistics. The adviser joined the secretariat in July 1983 and left in August 1985 when funding lapsed. During that period, the adviser fielded 18 missions to 14 countries in the region. The regional advisory services appeared to have

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5/ Report of the Statistical Commission on its twentieth session (Official Records of the Economic and Social Council, 1979, Supplement No. 3), paras. 27 and 29 (e)).

been beneficial to those countries which the adviser served. Although industrial statistics have reached a fairly developed stage in some countries in the region, other statistically less developed countries might still require assistance to establish a proper industrial statistics collection system. The Committee is requested to provide guidance on whether regional advisory services in industrial statistics should be reinstated, or suggest other activities which should be undertaken to further develop industrial statistics in the region.

C. Meetings related to economic statistics

29. Since the fifth session of the Committee on Statistics, the secretariat has organized four technical meetings related to the development of economic statistics. The reports of these activities are available to the Committes for its comments and views.

Pacific Subregional Workshop on Price Statistics

30. The Pacific Subregional Workshop on Price Statistics was held from 3 to 8 October 1983 at Port Vila, Vanuatu. The Workshop was organized with financial support from the Government of Australia, and the Government of Vanuatu provided host facilities. It discussed the role of household expenditure surveys and other data sources in the construction and revision of consumer price indices. It focused on practical aspects in the compilation of consumer price indexes, including the special problems in data collection faced by the island countries of the Pacific. In addition, it examined the approach to the consumer price index adopted in Australia. The Workshop also discussed indexes relating to goods entering international trade as well as the integrated and co-ordinated approach to the development of price statistics being promoted by the United Nations Statistical Office. It noted, among other things, that if computer programming skills were available, processing of consumer price indexes could be handled easily by microcomputers. The report of the Workshop is presented in document E/ESCAP/STAT.6/10.

Asia-Pacific Meeting of Statisticians on Input-Output Tables

31. The use of input-output techniques for understanding the structure and the interrelationship of various economic sectors has been widely accepted. However, the regular compilation of such tables has not yet become a general or widespread practice. In the light of this and in the

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context of the implementation and revision of SNA, the secretariat organized the Asia-Pacific Meeting of Statisticians on Input-Output Tables at Tokyo from 13 to 19 March 1984, with financial support and host facilities provided by the Government of Japan. The Meeting considered problems concerning the compilation of input-output tables, such as sources and methods, constant price tables, fixed capital matrix and employment matrix, and so on. It also considered the uses of input-output tables, including their utilization in economic planning and analysis. The Meeting recognized the need for adequate data for input-output work, especially data relating to the household and informal sectors, and in this connection supported the National Household Survey Capability Programme. The report of the meeting is presented in document E/ESCAP/STAT.6/9.

Asia-Pacific Seminar on the International Comparison Project and Price Statistics

32. Although considerable progress has been made in standardizing accounting methods in GDP and national accounts estimates, the conversion of various country estimates into a common currency for direct comparison presents many problems. The International Comparison Project (ICP), which was launched in 1968 to develop appropriate methodologies for resolving comparison problems, has progressed through its first four phases; the fifth phase, emphasizing methodologies for developing countries, begins in 1985. In view of the importance of price statistics in both national and international statistical systems and in the context of the revision of the SNA, the secretariat organized the Asia-Pacific Seminar on ICP and Price Statistics at Sapporo, Japan from 16 to 22 October 1984, with financial support and host facilities provided by the Government of Japan.

33. The Seminar reviewed the status of price statistics in the ESCAP region. It discussed the expenditure framework and methodological issues of ICP and problems in making price comparisons. The Seminar recommended, inter alia, that ICP activities should be integrated with national accounts compilation work in general. It noted that the secretariat, in accordance with the priorities mandated by member countries, had hitherto done little work on ICP. It recommended that ESCAP should henceforth play a more active role in ICP in the region, although not at the expense of any of its existing responsibilities and priorities. Efforts should

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therefore be made to augment the capacity and resources available to the secretariat appropriately. The Seminar noted that participation in ICP would enhance international comparability of statistics among countries of the region. The report of the meeting is presented in document E/ESCAP/STAT.6/11. While the Government of Japan has indicated that it is exploring the possibility of providing technical assistance to help countries of the region participate in ICP, the secretariat nevertheless wishes to seek the guidance of the Committee on the extent of its involvement in ICP activities, while maintaining the existing responsibilities and priorities of the work programme.

SIAP/ESCAP Expert Group Meeting on Developing Statistics of Household Economic Activities

34. Economic statistics collected through establishment surveys are fairly well developed in many countries in the region. There exists an abundance of literature and guidelines on the collection of data in the organized sector. Data on economic activities of the unorganized sector, at household level, are important especially in most developing countries where the contribution to GDP of household economic activities is quite substantial. International standards or guidelines for organizing surveys of household economic activities have yet to be developed, although some countries in the region have done work in this area. In view of the importance of data on economic activities at household level in the compilation of national accounts as well as the desirability of having uniform concepts and definitions, and possibly a common approach to collecting such data among countries in the ESCAP region, the secretariat, in collaboration with SIAP, organized the SIAP/ESCAP Expert Group Meeting on Developing Statistics of Household Economic Activities. The Meeting was held at Bangkok from 23 to 28 September 1985. It discussed specific requirements for data relating to household economic activities for national accounts and planning; the definition, scope, concepts, survey methods, analysis and evaluation relating to such data; and the integration of information collected from different sources. The report of the meeting is presented in document E/ESCAP/STAT.6/12.

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Committee on Statistics

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DEVELOPMENT OF ECONOMIC STATISTICS

(Item 6 of the provisional agenda)

REPORT OF THE ASIA-PACIFIC MEETING OF STATISTICIANS ON INPUT-OUTPUT TABLES

Note by the secretariat

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I. ORGANIZATION OF THE MEETING

1. The Asia-Pacific Meeting of Statisticians on Input-Output Tables, organized by the secretariat of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in collaboration with the Government of Japan, was held in Tokyo from 13 to 19 March 1984. Financial support and host facilities were generously provided by the Government of Japan.

Attendance

2. The Meeting was attended by 32 participants from 13 members and associate members of ESCAP, namely, Australia, Fiji, Hong Kong, India, Indonesia, Japan, Malaysia, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand and the United States of America. The countries were generally represented by senior officers associated with the compilation or use of input-output tables in national statistics or planning offices, or in central banks. Representatives of the United Nations Statistical Office, the Statistical Institute for Asia and the Pacific (SIAP), the Asian Development Bank (ADB), the Commission of the European Communities and the World Bank also participated.

3. Mr. W. Leontief, Professor at New York University and Mr. M. Morishima, Professor at London School of Economics and Political Science, attended the Meeting by invitation. Mr. Leontief delivered a special lecture on the topic "Development of input-output analysis" and Mr. Morishima delivered a special lecture on the topic "Classical, Neoclassical and Keynesian in the Leontief framework". Both participated in the discussions during the meeting.

Opening addresses

4. The Chief of the ESCAP Statistics Division welcomed the dignitaries, participants and resource persons to the Meeting. He noted that gatherings of that nature provided a valuable opportunity for country participants to exchange views and relate their experiences and thereby learn from each other. Through the knowledge obtained, countries might avoid costly duplication of effort in the development, compilation and analytical procedures, and avoid repetition of errors.

5. In his inaugural address, His Excellency Mr. Takashi Sakura, Administrative Vice-Minister, Administrative Management Agency, Government of Japan, recalled his interest and efforts in introducing input-output tables

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into Japan 30 years earlier when he had worked in the Office of Statistical Standards of the Government of Japan. He observed that interdependency between economies had considerably increased since then, requiring closer international co-operation in various fields. The meeting on input-output tables was thus significant and opportune in that regard. It should contribute to the economic and social development of countries through a proper understanding of the economic structure for both domestic economic policy-making and the development of assistance programmes. It should also promote the development of statistics in the countries of the ESCAP region.

6. The Executive Secretary of ESCAP, in his message expressed his sincere gratitude to the Government of Japan for its generous provision of financial support and host facilities for the Meeting. He observed that indigenous capability-building among developing countries was a major thrust in the programme of work of ESCAP. Technical meetings were an important and useful means for that purpose. Such meetings were usually well supported since developing countries were keen to advance their statistical expertise in order to produce the reliable information needed for planning and monitoring development programmes and for assessing progress.

7. The Executive Secretary noted that input-output tables were a technique for understanding the structure and the interrelationships of various economic sectors. Such tables were also a part of the national accounts system, an aggregative measure which was more familiar to most decision makers. However, owing to a lack of sufficient integration, it was not uncommon for diverging estimates of aggregates such as gross domestic product to result from the compilation of input-output tables on the one hand, and national accounts on the other. The Executive Secretary observed that the Meeting would be looking at that issue in the context of reviewing the United Nations System of National Accounts (SNA). In the process, the Meeting might also consider how best to reflect the nature of technologies adopted by countries, including the presence of significant subsistence activities in many countries, in the basic structure of input-output tables.

8. In his welcoming address, the Director-General of the United Nations Bureau of Japan's Ministry of Foreign Affairs, on whose premises the Meeting was held, noted the importance of statistics in research, analysis and planning.

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Trained manpower was essential for that purpose. He observed that the Meeting should therefore serve as a training opportunity for the participants through the exchange of views and experiences.

Election of officers

9. The Meeting elected Mr. Teruhiko Kondo (Japan) as Chairman and Mrs. Grace Majumdar (India) and Mr. Lau Kak En (Singapore) as first and second Vice-Chairman, respectively. Mr. Paul Gretton (Australia) was elected Rapporteur.

Adoption of the agenda

10. The Meeting adopted the following agenda:

1. Opening of the Meeting.
2. Election of officers.
3. Adoption of the agenda.
4. Input-output tables in the ESCAP region.
5. Special lectures.
6. Compilation of input-output tables:
   (a) Source statistics for input-output tables;
   (b) Methods of compilation of input-output tables;
   (c) Tables on fixed capital, employment, etc.;
   (d) Constant price tables and deflators.
7. Conceptual problems of the System of National Accounts and input-output tables.
8. International comparability of input-output tables.
9. Uses of input-output tables:
   (a) Utilization of input-output tables in economic planning, analysis, policy and projections;
   (b) Use of input-output tables in developing countries;
   (c) Use of input-output tables for energy analysis.
10. Computer support:
   (a) Software packages for compilation of input-output tables;
   (b) Software packages for economic analysis using input-output tables.

/11.

11. Conclusion and future actions.

12. Consideration and adoption of the draft report.

11. The documentation prepared for the Meeting is listed in the annex to the report.

12. The participants and resource persons expressed their warm gratitude to the Government of Japan for providing host facilities and excellent administrative support. The generous hospitality of the Japanese authorities was very much appreciated.

II. INPUT-OUTPUT TABLES IN THE ESCAP REGION

13. The secretariat paper (STAT/MSIOT/3) briefly described the evolution and development of input-output tables in the countries of the region. The Meeting noted that although a few countries had made an early start, and several others had joined somewhat later, many more were currently engaged in developing such tables for their economies. A number of national agencies were generally involved, but the co-ordinating responsibility rested with the central statistical office, the planning agency or the central bank.

14. The Meeting also heard brief statements from the participants on the status of input-output work in their respective countries, based on the papers submitted by them (STAT/MSIOT/CRP.5-16). A summary of country practices is provided below.

Country or area	Reference year	Comments
Australia	1978-1979	Annual tables were compiled; work on tables for 1979-1980 and 1980-1981 was proceeding.
Fiji	1980	The latest tables were an updating of the 1973 bench-mark tables. These bench-mark tables had also been updated to 1977.
Hong Kong	-	The Hong Kong Government had not yet produced a first set of input-output tables. However, it was envisaged that research work would be initiated in the near future, subject to the availability of resources, on preparing input-output tables for 1980.
India	1973-1974	Work on bench-mark tables for 1978-1979 was proceeding. Updated tables had been prepared but not published, for 1979-1980.

Country	Reference year	Coments
Indonesia	1975	Work on tables for 1980 was proceeding.
Japan	1980	The tables for 1980 were bench-mark tables; annual tables were compiled.
Malaysia	1970	Work on tables for 1978 was tentatively scheduled to commence in the second half of 1984.
Philippines	1979	The latest tables were an updating of the 1974 bench-mark tables. Work was being completed on bench-mark tables for 1979.
Republic of Korea	1980	Updated tables were compiled for selected reference years.
Singapore	1978	Began compiling annual tables commencing with 1980.
Sri Lanka	1980	The latest table was relatively aggregative. Work on a table for 1981 was being finalized.
Thailand	1975	Work on tables for 1980 was proceeding.
United States of America	1977	The tables for 1977 were bench-mark tables; annual tables were compiled.

15. In most countries of the region involved in input-output work, 'bench-mark' tables are compiled at five-year intervals. However, such tables were often published only after a significant time-lag from the reference year. In order to provide more timely and up-to date data, one of three approaches was frequently used. First, a number of countries 'updated' bench-mark tables for selected years using a combination of basic data and mathematical estimation techniques; for example, that approach had been used by Fiji, India and the Philippines. Second, other countries compiled annual tables by projecting the results of a bench-mark table forward, using a combination of clerical and mathematical estimation techniques; for example, that approach was being followed in Japan and the United States. Finally, in the case of Australia and Singapore, tables were being compiled on an annual basis using an approach whereby bench-mark estimates were made of selected flows in any one year and the remainder of the flows were estimated mathematically. All flows would be bench-marked over a periodic cycle, for example, five-yearly. The viability for some countries of adopting a system of annual tables was questioned on the grounds of the resources that might be involved and the difficulties that could be encountered if a country faced rapid staff turnover.

/16.

16. The emphasis in the countries was on national tables; nevertheless, in Australia, India and Japan, the need for subnational input-output tables was also voiced, and they were attempted. However, it was recognized that the non-availability of adequate data on such items as trade flows between different parts of the country was a major difficulty. Concerning industry data, countries recognized that there was a lack of sufficiently disaggregated information for key economic sectors. In addition, when censuses and surveys were available, and further analysis of existing data was possible, confidentiality and the practical problems of retabulating data by the minute classifications required for regional work inhibited the development of subnational tables. Nevertheless, special surveys were organized in some countries for specific data. Most countries, however, experienced difficulties in organizing data collection for the household and unorganized sectors.

17. For the valuation of flows, the Meeting noted that countries were increasingly adopting approximate basic values as recommended in SNA, or approximate factor value. Several countries, however, continued to use either producers' or purchasers' values as the central valuation principle. With regard to imports, many countries made the distinction between competitive and complementary (non-competitive) imports; some others recognized the need for that distinction but had not yet adopted it. A number of countries also compiled an imports matrix and thereby provided a measure of the disposition of imports to using sectors.

18. Computers were being used for data analysis and compilation of various tables and matrices, but some countries still faced difficulties owing to a lack of suitable software packages, computer hardware storage and processing capacity, or trained manpower. The Meeting also noted severe restrictions of resources in terms of both technically trained manpower and finances for various operations involved in the planning, organization and preparation of input-output work.

19. A number of countries had made extensive use of the mathematical estimation technique which was called the "RAS" method, in conjunction with more traditional basic data estimation procedures. That technique was used to project a base table to a target reference year in order to provide up-to-date tables as well as to economize on resources. Countries using the

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technique planned to continue doing so in the future and to develop and refine its application. The Meeting discussed the utility of that technique. It was noted that the specification of the "working matrices", the accuracy of input-output flows that were determined in the clerical system, and the need to allow specifically for major economic change by the estimation of certain flows from basic data, were critical to the successful application of the RAS technique. Nevertheless, views differed on the extent to which that technique should be used.

20. The Meeting noted that input-output tables were widely used in the construction of planning models; demand and supply projections of commodities; studies of the detailed structure of the economy; policy formulation in various fields like employment, energy, tourism and prices; determination of priorities in the allocation of foreign exchange, and so on. Input-output tables were also used for import studies of various policies.

21. The Meeting was also informed of the work that the United Nations Statistical Office was planning in the field of input-output tables, including a publication on input-output tables and the establishment of a data bank. The co-operation of member countries was sought in that regard.

22. The Meeting noted the strong support for the development of input-output work from the World Bank, the Asian Development Bank, the Commission of the European Communities and SIAP. The offer in principle by the representative of the Commission of the European Communities of technical assistance to African, Carribean and Pacific (ACP) developing countries for the development of national accounts was gratefully noted.

III. COMPILATION OF INPUT-OUTPUT TABLES

A. Sources and methods

23. The Meeting had before it the paper entitled "Compilation of input-output tables: data and methods" (STAT/MSIOT/1) prepared by a consultant to the secretariat. The paper included a discussion on how input-output tables could be more reliably estimated. It was argued that the SNA framework as sometimes applied to the compilation of current indicator series of national accounts was not necessarily conducive to efficient and reliable collection of data for the detailed structural accounts of production provided by the input-output tables. The table should therefore be regarded as the basic working model

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of the real economy rather than just one alternative working model. Once a reasonably accurate bench-mark input-output transactions table had been established, then the subsequent process of data collection and compilation should be one of annual verification of the estimates of major flows and mathematical estimation of the remaining flows by some reliable technique. The "modified RAS" was recommended. It was further observed that the statistical reliability of the transaction table depended upon how representative it was of the Leontief Input-Output Model. Some major problems in that connection and how they might be solved were examined in the paper under the headings of multiple products, valuation, import valuation and routing, classification and aggregation. It was suggested in the paper that more use of sampling techniques, econometric methods and industrial experts should be made for the preparation of bench-mark flows and for the checking of the accuracy of estimates obtained by mathematical projection. It was further advised that a number of special purpose extensions could be made to the usual transactions tables in order to reflect regional economic activity, government activity, taxation, income distribution, and consumer behaviour. Those extensions would make the input-output tables more useful for policy analysis and specification while at the same time optimizing the use, within an intersectoral modelling framework, of the data that might already be collected.

24. The Meeting commended the consultant on the elucidating exposition given in the paper. During the discussion, opinions were expressed that it would be too restrictive to focus data collection only on the production accounts provided by the input-output model and that the institutional framework of the SNA was required in order to accommodate all data needs for analysis of household behaviour, government policy etc. Other participants, however, felt that there was a way to handle non-activity-based data by the development of a transformation matrix. The concept of the basic input-output model did not imply that no further data should be collected but that the model should serve as a catalyst and should therefore have higher priority in data collection.

25. With regard to sources of data for the compilation of input-output tables, the Meeting felt that both censuses and sample surveys should be used. Some countries used a combination of complete census of some units and sample surveys of other units for collecting data in certain sectors, such as

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manufacturing. Data collected for the national input-output tables were made available subject to confidentiality and other considerations for the purpose of estimating subnational input-output tables.

26. On the question of possible cumulative errors where annual updating of tables was done by the modified RAS, the Meeting observed that such a possibility existed since errors could accumulate in a loosely specified estimation model because different sectors were investigated by reference to basic data in different years. Careful specification of the constant estimation model and vigilance were therefore advisable in the use of the modified RAS method (or any other mathematical estimation technique).

27. With regard to projecting the imports matrix forward in the RAS calculation, the Meeting agreed that difficulties would be encountered in maintaining the high degree of accuracy required for analytical purposes. It was suggested that there should be a world matrix of input-output flows, not just the separate national tables showing import flows, if success in fully analysing world trade flows was to be achieved. The Meeting noted that an earlier study by a group had predicted, through a world input-output model, the serious balance of trade problems that were actually occurring today for the developing countries.

28. The Meeting recognized that the purpose of using annual updating techniques was to cut down on the costs of any one table. That was possible since not all sectors would require investigation each year. If the time between tables was extended, more sectors would require full investigation for any one table and therefore the costs assigned to the compilation of a particular table would be necessarily larger than if the work was spread over a number of tables.

29. The Meeting noted that abstract mathematical modelling might be of limited practical use in current economic policy-making. Concrete empirical approaches based on common sense and presented in a disaggregated form that could be interpreted by economic agents could help solve problems better. Input-output studies, if properly conceived, would be extremely useful in policy analysis.

30. The Meeting also noted the paper entitled "Estimating input-output tables from scarce data: experiences of the United States Census Bureau's Center for

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International Research" (STAT/MSIOT/CRP.4) presented by the participant from the United States of America. The paper summarized scarce data estimation techniques used in constructing input-output tables for the Union of Soviet Socialist Republics and China. Those techniques included means for estimating portions of the inter-industry demand matrix by use of surrogate data (representing missing inter-industry flows with data from available input-output sectors, from regional input-output tables, and from price-adjusted input requirements from input-output tables of other countries), updating input-output tables using the RAS technique and RAS variants, estimating value-added and final demand quadrants from scarce data, and estimating price indices for converting current price tables to constant prices.

31. In the discussion that followed, the Meeting noted that the surrogate data estimation technique had been tested for accuracy on the Soviet input-output table with encouraging results. Furthermore, with regard to the doubt as to whether input coefficients could be used to assess the accuracy of surrogate input-output requirements since they tended to change relatively quickly, the Meeting felt that surrogate data estimation techniques should be used with some care as it was indeed possible for coefficient matrices of certain countries to change quickly. It was suggested that price indices could be estimated using information about foreign currency exchange rates; the possibility of using information obtained from international comparisons of purchasing power parities was also suggested.

B. Fixed capital matrix and employment-occupation matrix

32. The fixed capital stock table was intended to capture the fixed capital assets of each industry and to provide a dynamic function for preparation of policy and planning models. The Meeting therefore considered the purpose and classification of fixed capital, by type and sector, capital function classification, nature of a fixed capital matrix, evaluation of gross and net capital stock, data sources and application of the stock-related ratios. It also considered the definitions, classifications and data sources relating to employment with the objective of deriving capital-output and capital-employment ratios. The basis for those considerations was document STAT/MSIOT/4, which was prepared by a resource person from the host country and which was commended by the Meeting. It was noted that very few countries had attempted to compile capital stock matrices; Japan and the Republic of Korea were important examples of countries for which tables were available.

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33. Problems were raised relating to the coverage of capital stock, especially in respect of land, animal, plant and oil resources. The Meeting considered that normally non-reproducible tangible assets should not be included. However, newly-cultivated land, increment of land and improved land could be included in capital stock. It would be useful to compile a land utilization matrix separately from a fixed capital matrix so that the users could decide to include or exclude land as they wished. As regards their estimation of the value of the assets, the Meeting felt that in developing countries, data on land, animal and plants might be collected at the time of censuses of agriculture and forestry. Some data could even be collected during farm household surveys.

34. Problems relating to capital stock by industry were also considered, especially in respect of leasing. Some of the developing countries with limited resources found it difficult to make an estimate of capital stock and wished to utilize data contained in feasibility studies for various projects in order to arrive at an incremental capital-output ratio. In that connection, it was considered that wherever possible data on investment might also be collected directly from enterprises in countries where capital stock was not large and where ownership might be concentrated in a relatively small number of enterprises, in view of the early stages of industrial development in those countries.

35. The Meeting also considered under that subheading the document entitled "Applications of input-output tables in the field of labour affairs" (STAT/MSIOT/5) prepared by the Ministry of Labour of the Government of Japan. The paper noted that input-output tables had been intensively used by Japanese Government agencies for labour market and wage-price repercussion analysis. Input-output labour market research made it possible to estimate employment-generation effect in response to a change in final demand as well as employment implications from external shocks, such as import control. However, in all those cases the results should be used with caution in view of the fixed coefficients inherent in the analytical approach and the possible cyclical and secular changes in labour productivity. In addition, the job-loss effect estimated by a sample input-output analysis based on fixed coefficients did not necessarily lead to immediate unemployment because of the so-called life-time employment practice in Japanese enterprises. It was further argued in the paper that it was possible through a wage-price repercussion

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analysis to estimate the theoretical increase in production cost due to a change in the exchange rate, an across-the-board uniform wage increase, an increase in crude oil price, etc. It was also noted that the impact from those changes on both the consumer price index and the wholesale price index was estimated on the basis of the decomposition of the input-output model.

36. The Meeting commended the paper and felt that the use of the input-output technique in the analysis of employment and prices was feasible so long as its limitations were kept in view.

C. Constant price tables and deflators

37. The Meeting considered the subject of the constant price input-output tables with special reference to procedures adopted in Japan for their compilation, on the basis of document STAT/MSIOT/6 prepared by a resource person from the Ministry of International Trade and Industry of the Government of Japan. The document was commended by the Meeting. Constant price tables for successive periods provided a means of measuring over time the "quantum" changes of the supply and disposition of goods and services; that is, they represented flows with the price effects of inflation removed. Such tables were compiled in two streams of work in Japan. In one stream, a series of three bench-mark tables were prepared in terms of the latest years' prices (for example, 1970, 1975 and 1980 tables at 1980 prices). In another stream, annual tables were compiled at constant prices using a combination of clerical and mathematical estimation techniques. The base year for that annual series was the latest year for which bench-mark tables were available. In both streams of work, individual flows were revalued by a method relevant to the sector, which could be supported by available data.

38. The problems in compiling constant price tables and their usefulness in time series analysis were considered. One compilation problem related to the balancing of each column sector and each row sector when the use of the "double inflation" method of revaluation was adopted. Under that method, any estimation error of inflators was absorbed in value-added. However, there seemed to be no means of avoiding that problem in the compilation of constant price tables. Another problem related to the analysis using a long time series of constant price tables where there had been substantial structural changes. Despite those problems, the usefulness of the tables was confirmed in assessing the quantum change in industrial structure.

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IV. CONCEPTUAL PROBLEMS OF THE SYSTEM OF NATIONAL ACCOUNTS (SNA) AND INPUT-OUTPUT TABLES

39. For the consideration of agenda item 2, the Meeting had before it document STAT/MSIOT/2 prepared by the United Nations Statistical Office. Another document, STAT/MSIOT/CRP.3, was also distributed in the course of the discussions. The review of SNA standards that was currently being conducted by the United Nations Statistical Office in close collaboration with other international organizations such as the European Economic Community (EEC), the Organisation for Economic Co-operation and Development, the International Monetary Fund (IMF) and the World Bank was introduced to the Meeting. The aims, organization of work involved and the issues needing attention in the review were explained. It was emphasized that there was a need for countries of the ESCAP region to participate actively in the SNA review through country studies, responses to United Nations documents and discussions at regional meetings. Only through concerted efforts on the part of individual countries could the specific national accounting requirements of the countries in the region be reflected in the final revision of the SNA, which was planned to be completed by 1990. It was also noted that the United Nations Statistical Office planned to issue a report on country practices in the field of input-output statistics during 1985.

40. The Meeting considered several issues in the SNA review that were thought to be of particular importance to the field of input-output statistics. It felt that a re-examination of the existing structure of the SNA and the priorities implicitly contained therein could be useful. Some participants suggested that the input-output table could be incorporated as the central organizing framework for data collection and compilation in developing countries as opposed to the current system whereby the emphasis was placed on aggregative statistical measures. The development of such a framework might have priority over the elaboration of other parts of the System or extensions to it. That should be reflected in the concepts and classifications included in the SNA and in the issues that needed to be included in the further discussion of the SNA review.

41. The Meeting noted that the current exclusion in the SNA of intra-establishment deliveries would make the comparability of input-output tables between countries, and also within the same country over time, more difficult. It was suggested that the latter could occur when, in the course of time,

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detailed information on the production costs of establishments became available and was used to identify new producing units (or establishments) and to include in production non-market output which was previously omitted. In that context, it was recommended that the concept of gross output in agriculture as used in the centrally planned economies should be recommended, and attention given to the substantial practical difficulties involved in the separation of that part of household expenses which constituted the cost of production of household marketed and, as appropriate, non-marketed activities. It was also suggested that a study might be undertaken to identify, as part of the gross output, the growing production of software facilities for own use.

42. Reconciliation of the activity and commodity classifications used in the SNA with the Standard International Trade Classification (SITC) and other trade classifications in accordance with the industry of origin principles on which input-output tables were based was considered by the Meeting to be very important in view of the use that was being made of foreign trade statistics in national accounts. Efforts to accomplish such a comparability of classifications through the Joint UNSO/SOEC Working Group on World-level Classifications were welcomed. However, the problems that such changes in the classifications might create for statisticians in the countries of the region with limited capabilities were also noted, particularly if the changes were to require them to deal with increasingly complex and detailed classifications.

43. The Meeting observed that the application of the socio-economic classifications within the SNA (e.g., institutional sector and type of producers) in an input-output context might enhance the stability of input-output coefficients over time. Updating techniques such as the RAS method would thus produce more accurate and reliable results. The Meeting also noted that the further development of socio-economic classifications should take into account the efforts of ILO and others to draw up norms for occupational and other socio-economic groupings. It was suggested that attention could also be paid to identifying and including separately additional non-marketed activities (such as household work) in national accounts estimates or to measuring the level of such activity in complementary socio-economic series. In addition, the practical problems of covering black market activities should be considered.

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44. The possible change from an ownership to a user basis in the classification of gross fixed capital formation by activity was welcomed by the Meeting. However, the practical problems were recognized. Such a change would require adjustment, as appropriate, of the information obtained in respect of unincorporated, quasi-corporate and corporate enterprises and general government where capital expenditures relating to rented equipment were included in the accounts of the units/enterprises owning the relevant equipment. Care should be taken in analysing the effects that that might have on any other national accounting elements, particularly those that reflected the treatment of renting and leasing. Many countries encountered difficulties in the treatment of leasing; Japan, for instance, classified all leased equipment with the owner of the equipment, irrespective of whether such a lease was a financial or an operational lease.

45. The Meeting considered the proposals developed in EEC and OECD to distinguish between two possible types of sectoral consumption classifications; that is, a classification based on who was paying (household, government or enterprise consumption expenditure), and a classification by type of beneficiary (individual or collective consumption). It was suggested that the classification based on who paid might be more appropriate for use in input-output tables.

46. In discussing the coverage of capital formation, it was suggested that it might be most appropriate to include military expenditures in government consumption. Under such a scheme, military equipment should be included in the capital stock only when it was transferred to civilian use. Any other type of treatment could distort the level of capital stock for some analysis. The Meeting noted that the reconciliation accounts of the SNA had not been developed within national statistical systems and that the analytical role of those accounts might be usefully reconsidered.

47. The Meeting discussed the limitation of the existing SNA definition and treatment of the imputed bank service charge for both input-output analysis and for countries providing or receiving significant international financial services. It noted that the United Nations Statistical Office was actively considering alternatives for the definition and treatment of an imputed service charge. In the same context, it was suggested that the treatment of transactions of credit card companies be re-examined.

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V. INTERNATIONAL COMPARABILITY OF INPUT-OUTPUT TABLES

48. Three papers were considered under agenda item 8 (b). In two of those, STAT/MSIOT/7 and STAT/MSIOT/9, prepared by a consultant to the secretariat and by a resource person from the host country, respectively, the methodology, technical problems and uses of multinational input-output tables were discussed. In the third paper, STAT/MSIOT/8, the problems of valuation in an international input-output table and proposed alternative ideas for experimentation were discussed. The Meeting commended all three papers.

49. The Meeting recognized the usefulness of combined multinational input-output tables as an analytical tool for national development planning as well as for promoting international trade and economic co-operation among countries of the region. As a prerequisite, the importance of compiling national input-output tables in which complementary (non-competitive) and competitive imports were separately distinguished, which was in principle based on a unified or standardized criterion in line with the SNA, was emphasized. It was also necessary to establish a comprehensive converter system covering the relevant data source relating to industry and commodity classifications (for example, among International Standard Industrial Classification of all Economic Activities (ISIC), Standard International Trade Classification (SITC) and Brussels Tariff Nomenclature/Customs Co-operation Council Nomenclature (BTN/CCCN)) and the input-output sector classifications of the countries involved in the study.

50. Furthermore, an allocation of imported goods and services to demand sectors should be made on the basis of surveys, such as an import component survey with respect to industry and input structures, with the help of industrial technicians as far as possible. In addition, it was suggested that successive multinational input-output tables in constant price terms be compiled in order to facilitate time series analyses of industrial structural change and international comparability. It was desirable that the same reference year be used in all multinational table compilation projects.

51. Discrepancies in the classification, treatment of flows and accounting year in recorded imports and exports among countries were noted. Discrepancies in international trade could cause a serious problem not only in the compilation of multinational input-output tables but also for an analysis of international trade. In order to reduce such discrepancies, the Meeting suggested that

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some studies on international trade be carried out in both physical and value terms among partner countries. Such studies might examine the causes of discrepancies. That would contribute to an improvement in international trade statistics. A study on international freight and insurance would also be necessary in the region. The Meeting also noted that the preparation of multiregional input-output tables could improve the recording of trade flows for participating countries.

52. The Meeting noted that in an international input-output table, the United States dollar was generally used as the common currency for recording transactions. There might be significant limitations in that procedure if the relative prices of commodities were not uniform between countries. For example, if such prices were not the same among countries participating in a study, then a transformation of values simply using a market exchange rate would include some biases in input-output coefficients. In order to accomplish a consistent valuation of flows in the international input-output table, estimation of a transformation ratio or exchange rate for individual commodities was considered necessary. To estimate that ratio, a few alternative methods were considered and the purchasing power parity was favoured in principle.

53. The Meeting recognized the importance of the valuation problem, and suggested that the differences in the relative prices among countries should be evaluated in the compilation of an international input-output table. In that connection, questions relating to the compilation and reliability of purchasing power parity were raised. It was noted that information on purchasing power parities was in terms of purchasers' prices, whereas input-output flows were measured at producers' values or basic values. It was also noted that purchasing power parity suffered from another major limitation owing to inadequate treatment of "comparison-resistant" goods and services. Some valuation adjustments were therefore necessary.

VI. USES OF INPUT-OUTPUT TABLES

A. Utilization of input-output tables in economic planning, analysis, policy and projections

54. In considering item 9, the Meeting had before it document STAT/MSIOT/10 prepared by a resource person from the Government of Japan. It was argued in the paper that simple input-output analysis had come to be recognized as not sufficient

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for estimating the total effects in the economy. There was therefore a shift to using more comprehensive computer models containing input-output tables. Two examples of such models were the Medium-term Model and the Long-term Model. Both models were multisectoral and utilized input-output tables and computer-processing facilities. As an illustrative application of that extended input-output framework, an analysis that related final demands, human basic needs, and the disposition of 24 hours, was presented. The Meeting commended the paper and its exposition.

55. The Meeting observed that in order to make up for the defects due to the assumption of fixed coefficients, some special measures were taken in the application of the models. The "turn-pike" model laid the foundation for the long-term model. In the medium-term model, the demand-supply condition was also an explanatory factor for price determination. It also required a very large volume of data and estimation work but not much of a computing burden. The contrary was the case with the long-term model. The Meeting also noted that the development of the models followed mainly the theoretical requirements of economic analysis and the availability of relevant data owing to the implementation of the SNA in data collection work.

B. Uses of input-output tables in developing countries

56. The Meeting considered three documents under agenda item 9 (b), STAT/MSIOT/11, STAT/MSIOT/12 and STAT/MSIOT/13, which were prepared by resource persons from the host country. All the papers were commended by the Meeting.

57. With regard to document STAT/MSIOT/11, the Meeting took note of the proposed framework of growth accounting for both supply and demand sides of output, following closely the framework of input-output tables. Growth accounting from the supply side was presented first for individual industries and then for the aggregate national economy from the point of view of productivity measurement. Growth accounting from the demand side was derived as a combination of the analysis of import substitution and the constant-market-shares analysis of export growth mainly from the point of view of the latter. The corresponding measurements were given for the Philippine economy to illustrate the theoretical framework.

58. The document also proposed an analytical framework for the changes in input coefficients based on a decomposition formula which was closely related to the RAS method. That framework was illustrated by data from the

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Japanese economy. The Meeting was of the opinion that the framework suggested was pragmatic and lucid and could have a useful application in the countries.

59. The paper entitled "An input-output analysis of newly implemented iron-steel industry in West Malaysia" (STAT/MSIOT/12) contained presentations from a study by the author on linkage effects of Malayawata Steel and Malayawata Charcoal Berhad. In the study, linkage dispersion was assumed to be instantaneous, but in reality there were some lags in the dispersion process. Those could be checked by calculating the dispersion step by step, using a power series. Second, the structural change of linkages could be observed by applying a factor decomposition model to data for the two different reference years and seeing the linkage dispersion between two periods.

60. The Meeting recognized that induced employment in the steel plant might induce additional consumption which in turn would induce additional production. That could, however, be analysed by making consumption endogenous in the model.

61. In the paper entitled "The structure of the economic development process: input-output analysis of the Indonesian economy" (STAT/MSIOT/13), the author tried, by utilizing input-output tables of Indonesia, to clarify the characteristic changes of the structure of the interdependency of inter-industrial activities on each kind of final demand and the structure of repercussion of each kind of final demand on industrial activities in the context of industrialization in Indonesia. He proposed a new index called the "Give-and-take ratio" in order to analyse the intensity of inter-industrial linkages. By using that index, it was possible to identify the excess receipt and payment industries that might emerge in the course of economic development. He also analysed the factors underlying changes in forward and backward repercussion in each industry during the economic development proces. In that way, it was possible to bring out several facts which revealed some interesting characteristics in the economic development process in the Indonesian economy.

C. Use of input-output tables in energy analysis

62. The Meeting commended the paper entitled "Use of input-output tables - Energy analysis of Japanese industries: a time series analysis" (STAT/MSIOT/14), which was prepared by a resource person from the host country. The author presented the methodology as well as estimates of energy conservation in

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Japanese industries during the period 1965-1980 and also explained causes for the decrease in the direct conservation of energy during the periods 1975-1977 and 1979-1980, namely, that a lag was noted in the introduction of new technologies after the rise in oil prices and the economic decline around 1975 which seriously affected the capacity utilization ratios of most energy-intensive industrial plants. He further explained that in view of non-availability of data on investment matrices and converters, energy consumed for capital formation was not taken into account. The Meeting also noted that own account energy production was not specifically modelled but that such production was not expected to be analytically significant to the results before the Meeting.

VII. COMPUTER SUPPORT FOR INPUT-OUTPUT TABLES

63. A paper entitled "Software packages for compilation and use of input-output tables" (STAT/MSIOT/15) was presented to the Meeting for discussion. The topic was also included in the list of subjects for country reports which contained descriptions of computer use in respective countries. The paper also contained a review of practices in Japan showing the computer's role in the compilation of input-output tables. Various forms for data entry, lists for reconciliation of estimates and data file formats were introduced for reference purposes. The Meeting commended the paper.

64. The Meeting recognized that computer support to the input-output work of each country depended on the compilation methodology adopted in that country, that often implied difficulty in obtaining specific packages of computer programmes from one agency that could be readily applied to the work of another agency. The Meeting also noted the substantial difference between countries in the availability and models of computer hardware.

65. The Meeting took note of the usefulness of a software package called "SAS" (Statistical Analysis System), in addition to CONCOR, COCENTS and TPL developed in the United States, and of UNEDIT and X-TALLY of the United Nations, for handling raw and vector data. The practices of mathematical balancing of rows and columns of the input-output table which included the RAS, modified RAS and Lagrange methods and required computer processing facilities were also noted by the Meeting.

66. The Meeting considered the possible transferability of software programmes already developed in many countries. A proposal was accepted in principle that the ESCAP secretariat might collect and disseminate information on software packages and mathematical balancing techniques in use in the countries of the region.

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VIII. POSSIBLE FUTURE ACTIVITIES

67. Following the detailed discussions of substantive items, the Meeting considered what possible activities might be undertaken thereafter, by both the countries and the secretariat, to maintain as well as enhance the current development of input-output work in the region. A secretariat paper (STAT/MSIOT/CRP.2) presented to the Meeting provided some suggestions keeping in view the objectives of the Meeting.

68. The Meeting was also expected to provide some contributions to the current SNA review by the United Nations Statistical Office, perhaps through identification of activities relevant to input-output tables to be undertaken in the region during the next year or so. Topics needing feasibility studies by developing countries were the following: country practices in institutional sectoring; treatment, coverage and valuation of informal activities; use of industry and household survey data in national accounts; development of public sector accounts and reconciliation and/or harmonization of Government Finance Statistics (GFS) and SNA standards regarding government accounts; balance of payments and SNA standards regarding external transactions; regional accounts; definition and treatment of imputed bank service charges; and treatment of the terms of trade. The Meeting felt that selected countries of the region might wish to undertake or be asked to undertake studies on selected topics with a view to suggesting modifications for the SNA review. The Meeting also recognized that duplication of investigatory work between countries should be kept to a minimum. The secretariat's regional advisory services could assist countries in those studies as feasible. In that way, the views and the needs of the developing countries of the ESCAP region could be reflected and incorporated in the review.

69. The Meeting recalled the dearth in many countries of the region of trained personnel with expertise in input-output compilation of analysis. Training was therefore absolutely vital. The Meeting noted that SIAP, while currently including some instruction on input-output matters in its general course, was willing to devote one of its advanced courses to the subject in 1986. It could also organize country courses on the subject on request. The Economic Development Institute (EDI) of the World Bank could also conduct courses in Washington and, when requested to do so, in member countries. A country course could also include participants from neighbouring member countries. Other centres such as the Bureau of Economic Analysis of the United States Department of Commerce, and IMF in Washington also ran training courses. However, participants had to provide their own costs for the courses organized by the Department of Commerce.

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70. The Meeting recognized that observational and on-the-job types of training also had an important role. Therefore, developing countries engaged in input-output work could exchange personnel within the technical co-operation among developing countries (TCDC) programme. Developed countries could also assist bilaterally through secondment or exchange visits of their personnel to developing countries for short periods. The services of scholars from academic and research centres could also be available provided suitable funding was arranged.

71. Noting the effectiveness of regional advisory services of the secretariat, the Meeting suggested that a regional adviser on input-output analysis could do useful work. It requested the secretariat to explore with donor countries and international/intergovernmental organizations the prospects for the financing of such an adviser.

72. The Meeting was informed of the utility and effectiveness of the multiregional input-output table, particularly in assessing international trade. The table had been compiled seven years earlier under the sponsorship of the United Nations and with a grant of $US600,000 from the Netherlands. A similar study, incorporating the techniques developed since and catering for expected user needs, should be attempted once again, since such researches were important and useful. The current cost might be around $US1 million, and that cost might well be shared by several large international corporations if they were approached with a convincing proposal.

73. Recognizing the need for adequate data for input-output work, especially data relating to household and informal sectors, the Meeting supported the National Household Survey Capability Programme (NHSCP) of the United Nations. The Programme was particularly commendable since it accepted national priorities and integrated users' needs. For other productive and consuming sectors, sample surveys and censuses were also required. The Meeting suggested that data collections be organized to improve the overall quality and reliability of data, and be co-ordinated with the country programme for the compilation of input-output tables.

74. With regard to a data centre for input-output tables, the Meeting noted that the United Nations Statistical Office was already planning to organize such a centre. That Office also planned appropriate publications. The Meeting thus considered it inappropriate for the ESCAP secretariat to enter

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into those areas. The secretariat, however, could identify the input-output focal centres in the countries of the region, and compile a list of studies being undertaken by them and of the experts associated with those studies. It could also prepare an inventory of computer software packages available and in use in the countries. ESCAP might also act as a depository of technical papers, journals and other similar input-output related materials, with the objective of disseminating information about them among the interested countries.

75. The Meeting recognized that funds for statistical activities and programmes were subject to strict budgetary constraints in every country. Resources for input-output work were not exempt from that general constraint. However, there was some flexibility in the use of resources allocated to input-output work and therefore there was the need to evaluate data sources and alternative compilation methodologies carefully and to decide judiciously on priorities for the use of scarce resources. For the support of appropriations in national budgets for input-output and related statistical work, the Meeting suggested that statistics produced must at least be timely and accurate. They must also be lucidly presented so that policy-makers were motivated to utilize directly the available input-output information for policy and planning purposes.

76. Finally, the Meeting observed that some very valuable documentation was prepared and presented at its sessions. Country statements were also highly informative. The two eminent persons gave highly educative expositions on their selected topics. Those materials should have a lasting value if a summarized and edited version could be produced in a publication by the secretariat. The Meeting recognized that some resources would be needed for that purpose; it urged the secretariat to explore possible sources.

Annex

LIST OF DOCUMENTS

Document No.	Title
STAT/MSIOT/L.1	Provisional agenda
STAT/MSIOT/L.2	Annotated provisional agenda
STAT/MSIOT/1	Compilation of input-output tables: data and methods
STAT/MSIOT/2	Conceptual problems of System of National Accounts (SNA) and input-output tables - SNA review topics that might affect the design and construction of input-output tables
STAT/MSIOT/3	Input-output tables in the ESCAP region
STAT/MSIOT/4	Outline of fixed capital matrix and employment-occupation matrix
STAT/MSIOT/5	Applications of input-output tables in the field of labour affairs
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